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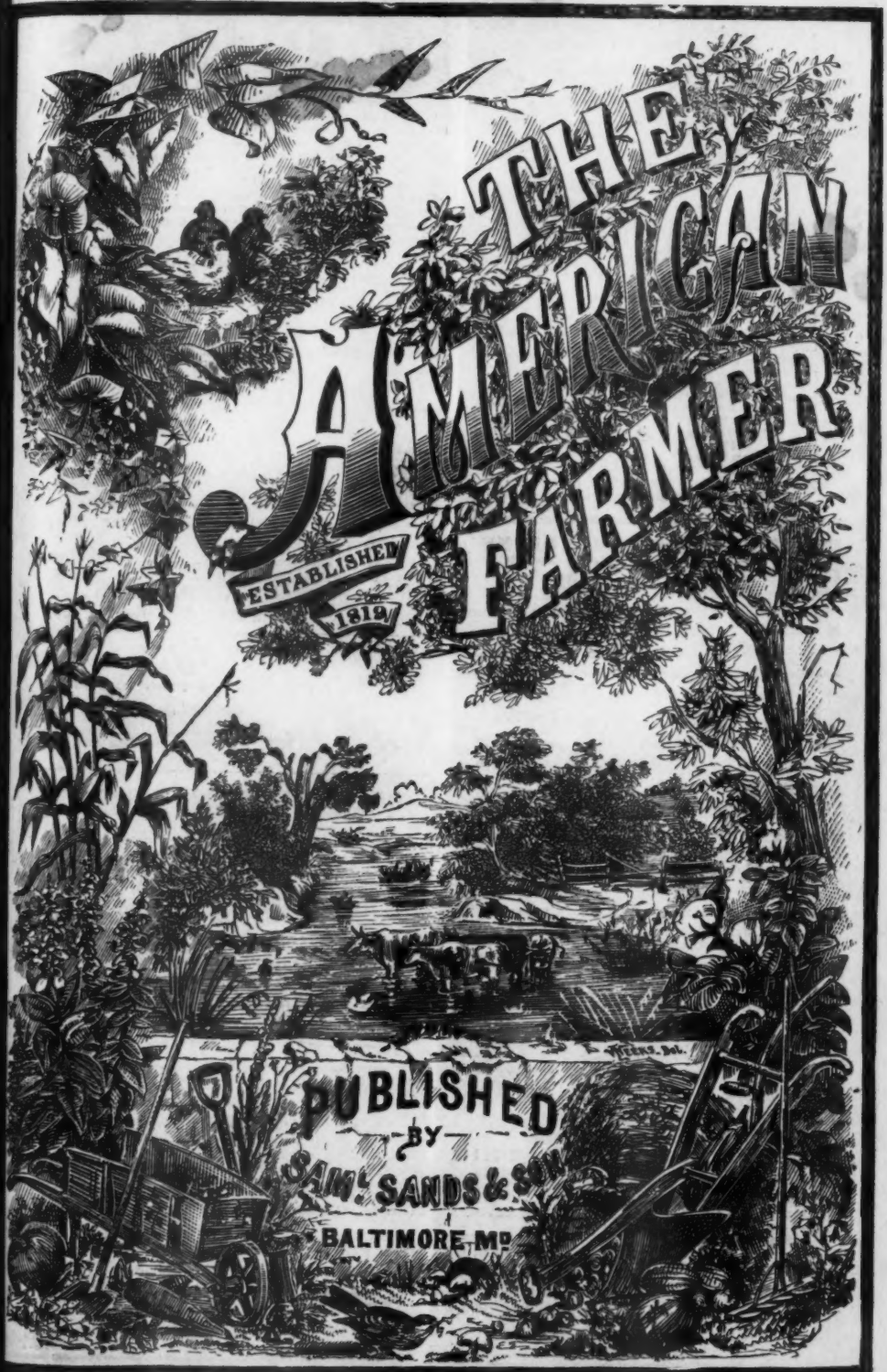

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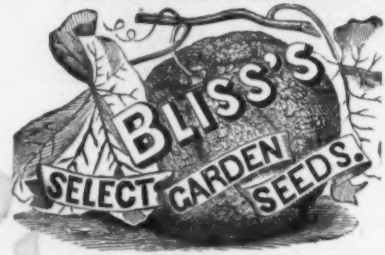

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VOL. VI.—No. 3.] MARCH, 1877. [NEW SERIES.

Agriculture as a Science.

(An Address delivered before Centralia Grange, No. 87, Anne Arundel Co., Md., by Dr. M. P. Scott.—Concluded.)

Fertilizer for Grain and Dairy Farms.

It has been a subject of remark, that the wheat crop of many of the finest regions of the country, as the Genessee Valley of New York, of parts of Ohio, &c., has greatly diminished.

This is true of the Piedmont region of Virginia. In former days it was a great wheat country; now a fine crop is rare. This region once exhausted by tobacco was restored to fertility by the use of plaster and clover; but the land has become what farmers call plaster sick, and a good crop of clover is rare. It was a fine growing country; it is quite a good one *now*. Wherefore this change? We must enquire into what the wheat and corn and cattle have carried off, and restore it to the land.

Think of the thousands of tons of phosphate of lime the cattle, sheep and hogs have carried off. Think of the tons of phosphates and other substances the wheat, corn and oats have abstracted. Think of the thousands of pounds of phosphates which have been taken off in the shape of milk during a period of fifty years, and how little has been restored, and we have a solution of the facts of poor and uncertain wheat crops in Piedmont Virginia. Science has discovered the cause, and is now able to furnish the remedy.

The appropriate manure for dairy farms is phosphate of lime. The manure of the cattle and the grass which decays will furnish organic matter in sufficient quantities. Such lands contain sufficient quantities of the other minerals. How do they become impoverished by grazing and milking the cows? Simply by the cattle carrying off what they get from the land. And the dairymen carry it off in the shape of milk and cream, and butter (the fat of the milk.)

The soil will become poor although you should carefully return all the manure of the farm, because in this manner only a *part* of what has been taken from it has been returned. The impoverishment is only a question of time.

The same principle applies to every branch of farming. Tobacco is a great exhauster, because nothing is returned but the root, which consists chiefly of woody fibre. Hence the farmer applies all of his manure to the tobacco crop. But he does not give to the soil as much as his tobacco takes away, and the result is the impoverishment of the whole farm.

Effects of Climate.

Climate has a most important relation to agriculture. Each zone has its peculiar Fauna and Flora—that is, to each pertain animals and plants peculiar, or which will thrive best. Man alone of all animals seems capable of living in any climate. But we know what a striking difference exists between men who inhabit different regions of the earth. Such is the effect of climate in determining physical and mental characteristics of the human race, that it forms the basis of the theory that all have a common origin—are descendants of a single pair of persons: the theory of the *unity* of *origin* of *man;* that climate and the face of the country has alone made the difference between the Esquimaux and the Chinese, the Negro and the Anglo-Saxon.

In certain regions of the earth may be found human beings who have not the intelligence of brutes. They are for the most part pur-blind, deaf—deformed in shape. Their big paunches, ricketty limbs and ill-shapen heads present a most pitiable and abject aspect. They are capable of responding only to the calls of hunger. They are idiots. These creatures are called Cretins. They exist in some parts of Switzerland, Scythia, and other regions of the globe. Climate is the cause of Cretinism.

Many things determine climate besides latitude: as elevation above the level of the sea; the neighborhood of large bodies of water, as bays, lakes, seas, insular positions, mountain ranges, &c.

Climate is influenced by the currents of the ocean. The Northern regions are moderated in temperature by currents of *warm water*, which flow from the equatorial regions towards the poles; whilst a contrary current of *cold water* from the polar seas diminishes the intensity of the heat of Southern countries, which, without its influence, would be unfit as an abode for *man*, *beast* or plant. In the Atlantic ocean this vast current from the torrid zone is called the Gulf Stream. It sweeps along the coast of North America, moderating the climate of the Northern States. Its influence is felt on the British Isles, and extends even to Norway and Sweden, which,

without its influence, would be an abode fit only for the Laplander or the Esquimaux.

To quote the eloquent language of the eminent Mathew F. Maury: "There is a river in the ocean. In the severest droughts it never fails, and in the mightiest floods it never overflows. Its banks and its bottoms are of cold water, whilst its current is of warm. The Gulf of Mexico is its fountain, and its mouth is in the Arctic seas. It is the Gulf Stream. There is in the world no other such majestic flow of waters. Its current is more rapid than the Mississippi or the Amazon, and its volume more than a thousand times greater. Its waters, as far out from the Gulf as the Carolina coasts, are of an indigo blue. They are so distinctly marked that their line of junction with the common sea-water may be traced by the eye. Often one-half of the vessel may be perceived floating in the Gulf Stream, whilst the other half is in the common water of the sea—so sharp is the line and such the want of affinity between those waters; and such, too, the reluctance, so to speak, on the part of those of the Gulf Stream to mingle with the common water of the sea."

Currents of air, their direction to or from the sea or large bodies of water, have a most important influence to determine the nature of a climate,—in other words, the character of the prevailing winds.

The main elements of climate are the temperature of the air and the soil itself; the quantity of rain that falls, and the character of the prevailing winds.

Climate of Atlantic States.

But the subject is far too extensive to consider within the brief limits of an address. I shall, therefore, confine myself to a few remarks concerning the climate of some of the Atlantic States, and more especially of those parts which extend from the Blue Ridge range of mountains to the coast.

Climate is, then, determined by latitude, elevation above the level of the sea, ranges of mountains, the neighborhood of large bodies of water, and the currents of the ocean. These considerations or conditions determine the direction of the prevailing winds, for the currents of the atmosphere are as certainly determined and controlled by physical laws as those of the ocean. The direction of the prevailing winds is largely concerned not only in determining directly temperature, but the *rain-fall* of a given region or section of country.

If you will look on a map of the United States you will find the conditions of one of the finest climates in the world. An immense seacoast on the Atlantic; the great river of the ocean, the Gulf Stream, coasting our entire seaboard; a corresponding flow of cold water to temper the Southern States; the Gulf of Mexico on the South; on the North the chain of great lakes, inland seas, the interior intersected by numerous magnificent views of length and magnitude unequalled in the world; on the coast numerous bays, gulfs and roads making up from the sea; and lastly, ranges of long and lofty mountains.

The rainfall of a country largely determines its fertility. Where there is no water there is a desert. Where it is perpetually raining, cultivation is impossible. It might be supposed that the happy medium would be productive of the greatest results; but in such an event, we would not have rivers, nor creeks, nor springs. We need, for animal productiveness, an excess of rain. It may surprise some to state, the annual rainfall in the United States—(I do not refer to the Pacific States)—is far greater than in sea-girt Great Britain. In London the annual rainfall is 23 inches; in New York, 42 inches; in Savannah, Georgia, 55 inches, (4 feet 7 inches,) &c. But a glance at the map would assure us of the fact—for our grand rivers, beside which those of Great Britain are mere spring-branches, are formed by the rains, the excess of which is carried by them back to the great fountain of waters, the ocean.

Perhaps the finest system of irrigation in the world is to be found on the Atlantic seaboard States of North America; and of this extensive section the most favored is the eastern slope of the Blue Ridge mountains to the coast.

Two great chains of mountains traverse the territory of the United States in a direction approaching South and North. They divide the country into an Eastern, Middle and Western section,—the Middle comprising the great basin or valley of the Mississippi;—the Rocky Mountains on the west and the Alleghanies on the east. East of the Hudson river the Alleghanies consist chiefly of granite hills, with rounded summits. Some peaks of the Green Mountains in Vermont, and White Mountains of New Hampshire, rise to the height of 5 or 6,000 feet. After we pass the Hudson the structure of the Alleghanies seems to change. In Pennsylvania and Virginia they assume the form of long ridges, varying in height from 2,500 to 4,000 feet, occupying a breadth of 100 miles. In Tennessee, where they terminate, they again lose the form of continuous chains, and break into groups of isolated mountains rising 5 to 6,000 feet in height. East of the Alleghanies we find the Blue Ridge, which, by some geographers, are included as a part of the Alleghanies, but which deserve an independent rank, both from their length, height, distinctness and important effect on the climate of the States which extend from their base to the ocean.

These mountains take their rise in Pennsylvania, pass through the northern part of Maryland, cross the Potomac at Harper's Ferry, traverse Virginia, North Carolina, northern part of Georgia, and are lost in the State of Alabama.

They are remarkable for uniformity of height, forming a great ridge or back-bone in the States through which they run. Wherever beheld they form a most beautiful feature in the landscape, and are remarkable for the beautiful deep blue of the atmosphere which bathes them. The great Limestone Valley of Virginia lies between them and the North Mountains, one of the long parallel ridges of the Alleghanies; on the west this country extends into Maryland and Pennsylvania, and southwest as far as the Tennessee line.

Mountains are nurseries of showers and rains. The vapor which forms the clouds they milk, must come from vast areas of water, as oceans, seas and lakes. The Alleghanies form a vast water-shed, from which the water flows either into the Atlantic Ocean or into the Gulf of Mexico. The water which flows west has come from the West, from the great lakes, and from

the southwest, brought by the southeast trade winds. But little of that brought from the Atlantic Ocean reaches the summit of the Alleghanies; it is milked from the clouds by the chain of Blue Ridge Mountains and the intervening mountain ridges. East winds are the dry winds of the country west of the Alleghanies.

The great rivers which rise in the Alleghanies and Blue Ridge flowing east to empty into the Atlantic Ocean attest the truths of my statement. The Susquehanna, Gunpowders, Potomac, Rappahannock, York, James, Roanoke, to say nothing of the minor rivers, creeks, runs and springs, but drain off the surplus water brought by the winds from the gulf stream and ocean, and restore it to the original fountain.

The evaporation from these rivers and streams and from the moist earth, serves to temper our climate in the heat of summer, gives rise to variable currents and electrical phenomena, affording partial rains in various sections, often accompanied by the phenomena of thunder storms.

The rain-bearing winds of the section of which I am speaking, blow from the N. E., E. and S. E.; they sweep over the ocean and bays which indent the coasts, become saturated with moisture; meeting with cold currents of air, condensation into clouds takes place, and precipitation in the form of rain follows.

Why Mountains Should Determine Rainfall

Is not so clear to our apprehension; for at a corresponding height in the atmosphere there is as cold a temperature. Two causes present themselves to my mind:

1st. The irregularity in height of different parts of all ranges of mountains; the deep glens, and gorges, and caves or caverns, must give rise to local currents and varying temperatures, which will in some degree affect the upper or regular currents; these, together with the perpendicular currents up and down, may in some sort serve to mass the clouds on or near the mountain-tops.

2d. I believe that the bulk or mass of the mountain attracts the clouds, as the moon raises the mass of the ocean to cause the tide. If you drop a plumb-line on the edge of a perpendicular mountain precipice, it will be swayed from the perpendicular towards the mountain side; it is attracted by the mountain; so my opinion is, that the mass of the mountains exercises a force of attraction upon the clouds, massing them, and pulls the rain-drops to the surface. How far electrical force exercises an influence is a matter of speculation, but it doubtless plays its part, as it does in almost every phenomenon of nature.

Our seaboard States possess all the conditions to make a delightful and healthy climate. Situated in the north temperate zone; an extensive water basin on the east, warm currents of the ocean from the torrid zones, cold currents from the polar regions, a great *long* back-bone of mountains, intersected by numerous splendid, long and broad rivers, great bays, and roads making up between the land from the ocean, together make up the conditions of one of the most favored parts of the world for the abode of man, and for his development into the highest type of intellectual and moral excellence.

Advantages Presented by Maryland.

No section of this beautiful slope is more favored than our own State of Maryland; north of her runs the grand Delaware river to debouch into the bay of the same name, intersected on the north by the rushing Susquehanna; divided by the great Chesapeake which bounds her on the south; on the west by the majestic and broad Potomac; on the north and west by the Blue Ridge and Alleghany Mountains—all combine to make the State one of the choicest spots in this grand country of North America. Her soil and productions correspond to her climate. Her wealth of fisheries, her agricultural products of wheat, corn, tobacco, her fruits of every description, and lastly her mineral wealth of coal and iron, make one of the richest of this great union of States of North America.

The position of Maryland affords one of the natural outlets for her less-favored sisters of the West, which has been increased by the energy of her people, and Maryland can with pride point to her great canal to be completed to the Ohio river, and to her railroads, one of which stretches to the vast lake regions on the northwest—and then in its incipiency, the Valley of Virginia road, destined to eclipse in value to your commerce the B. & O. R. R. This road will connect Baltimore with the richest region of North America—the south, and southwest valley of the Mississippi. These artificial channels of trade Maryland owes to the liberality of a sister State, Virginia, who granted the right of way to the Ohio river. With unexampled liberality, some read folly, Virginia has granted a charter through the entire breadth of the State, which, when completed, will afford Baltimore the most magnificent supply region of the United States.

Enlightened Agriculture the Basis of all Prosperity.

In conclusion, I must remind you the basis of prosperity of a country is agriculture. Successful agriculture not only depends upon the fertility of the soil, but the skill and intelligence of the farmer; he must learn to apply the principles of science to his daily work—he must get out of the deep rut he has been traveling—he must shake off the shackles with which tradition and reverence for authority have bound him—he must learn to think for himself. To do this he must seek knowledge!

> Nothing is more confident than ignorance—
> Fools rush in where angels fear to tread.

He must admit that it is *possible* that the old system may be wrong, or at least submit the new to a calm and careful examination.

Agricultural schools and colleges have done some good, but not near as much as was expected. Agricultural papers do much to disseminate the experience of farmers. *But what is most needed is an experimental farm under the control of men of science and practical skill.*

But the farmer may do much for himself by keeping an account of the variation of seasons, the temperature of the atmosphere and his soil, the number of rainy days, the annual rainfall, the kind of crops best suited to his land, the effect of different manures upon his crops, &c.

In this manner an immense number of facts may be collected for his future guidance. Publish your experience. Let there be frequent interchange of opinion and of the results of experience among the farmers. This brings me to the consideration of

Farmers' Granges.

I am much inclined to think that the institution of the grange has its origin in the small crops and small profits of the farmer.

As long as he made fine crops, he only grumbled a little when he received his commission merchant's account. Item drayage, item storage, item bags furnished, item wheat in bad order, item interest on money advanced, item commission. But when the items left him no balance, or in debt, he began to think it time to dispense with them; and hence the grange. But it will be small economy only to save. The great object of the grange should be to increase your crops. Properly conducted, immense benefit must accrue; not only by purchasing your supplies cheaper, and reliable manures, but by discussion at your meetings among the members. This will compel those who discuss, to read, study and observe.

Invite the delivery of lectures; this will stir you up—unsettle you—for the best thing to happen to the farmer is to unsettle him, and then to settle him. You will often find amusement in criticizing the blunders of the lecturer,—albeit, no farmer himself,—undertaking to teach the old practical farmer. You will often be able to correct his errors and tell him that for all his botany, that wheat *does* branch, and if it did not you would never raise half a crop, as half the wheat sown either does not come up, or perishes after it germinates. The grange will cultivate good feeling and neighborly kindness, and serve to dissipate prejudice and error.

Finally, if I have said anything to rouse in you the spirit of enquiry; if I have done anything to unsettle you; if I have said anything to set your brains to work, to induce you to think, I shall be satisfied that I have done good work.

God speed you in your efforts to advance the interest of agriculture, and to elevate the moral and intellectual standard of the farmer.

> And Triptolemus, whose bounteous hand
> Strewed golden plenty o'er the fertile land.
> * * * * * * *
> 'Tis true the youth shall be a mortal born,
> Nor shall his hands instructive labor scorn;
> He first shall plough, first sow the grateful soil,
> And reap the blessings that await such toil.
> —*Joannes Secundus.*

[NOTE—Triptolemus, the son of Celeus, was bred up from his infancy by Ceres, who fed him upon milk in the morning and covered him with fire at night. She taught him agriculture and sent him over the world in a chariot loaded with corn, to teach mankind that science, when he first instructed Greece.]

Raising Tobacco Plants.

[*An Essay read before Bethel Hill Grange, N. C., by* J. J. BROOKS, *and forwarded for publication in the American Farmer.*]

Having been appointed to write an essay on raising tobacco plants, I will, in compliance with that appointment, present to your consideration some practical suggestions on the subject. The best time for burning and sowing tobacco-plant land is, in my opinion, from the first day of January to the 15th day of February; if sown too early there is danger of their sprouting or coming up before the cold weather is sufficiently over to prevent them from being killed; and, if sown too late, there is danger of the fly destroying them from the want of a good start before the insect begins its ravages—therefore there is danger of failing to raise plants either from too early burning and sowing, or burning and sowing too late; but the early sowing is certainly the best, if the young plants can be saved from being killed by the cold snaps.

The second consideration, and I think the most essential, is the location and condition of the plant bed; the very warmest spots, if not too dry and thirsty, are the best,—say the southern slopes or eastern sides that lie facing or fair to the rising sun, for the sooner the beds can get the warmth of the sun after a chilly night the better. Some attention should be paid to the quality of the soil also; dry thirsty soil should be avoided, as also should soil of a very wet nature, especially wet spouty places; for either too wet or too dry are fatal to plant-raising.

Fine close soils, moderately moist, are the best, and there are signs of good plant land from the virgin growth on or about it; the best of those are the persimmon and sweet gum shrubs.

The next consideration is the preparation for sowing the seed. When a suitable place is selected, rake off the leaves and sweep the ground clean with a brush broom, then burn until the ground is dry and crusty; then rake off the chunks and coals, and mattock up two or three inches deep; chop over with hoes close, and rake off the roots; then scatter well-rotted stable manure chopped fine until the ground is about half covered, and now sow on a peck of tobacco fertilizer to the one hundred square yards, and chop the contents in well; then rake again, leaving the bed as level and smooth as possible, and sow the seed and whip or rake them in; after this scatter about as much more stable manure on the top and trample the bed well; then ditch around so as to keep it from washing if necessary, and cover with green brush clear of leaves, and set pine brush around the outside to catch the leaves from being blown on the beds and caught by the covering brush.

This operation, with ordinary seasons, will, if no mistake is made in the selection of a good location, ensure us plants nine times in ten without further trouble.

I have omitted to mention the greatest difficulty in the minds of a great many people in raising plants, viz: the flea bug or fly. I do dot think, however, we would have any trouble with them if the above rules are properly observed; for, with the above treatment, the young plants will grow so fast that the fly could not destroy them; but if we should have any trouble in this direction, and it should become necessary to resort to other remedies than those mentioned to save our plants from destruction, I would advise the application of tobacco fertilizer sown over the beds in less or greater quantities, as reason or common sense may dictate: for instance, if the plants are very young, a small quantity should be applied; and so on according to the size and strength of the plants. The fertilizer should be sown on while raining or just before it rains, and in the absence of rain throw on water until the fertilizer

is washed to the roots of the plants; this gives the plants a vigorous growth, which is worth more than all other remedies, for I put but little confidence in the multiplicity of remedies you hear about the destruction of the fly or the prevention of their sucking by those remedies; I believe the best means is to feed the fly by a superabundance of plants, or other vegetable matter. Mustard is a good feeder; they are fond of it, and I would advise the sowing of mustard seed lightly over our beds, and sprinkled around the edge as a help to feed the fly. Of the other remedies, I think ground plaster or air-slacked lime, sifted over the plants lightly, is the best; and I believe the only good it does is the nutritive matter derived from it to the plants, and keeping the beds moist. The idea advanced by some of covering plants entirely up with fine stable manure or anything else to keep the fly from finding them or to keep the cold from killing them, is, to my mind, a preposterous one, for we all know that any vegetable that grows with the root in the earth and the bud out, can be smothered and destroyed by covering the bud; hence I object to the covering process. Try it when you will and you will never see as many plants on your beds as you saw before you covered them. I have heard people telling about their covering their plants with fine stable manure, &c., and still their plants were lost, and they would charge the fly with the destruction, but I believe the remedy was the prime cause of the destruction of the plants. With these remarks, I leave the subject to the consideration of those who are more able to do it justice than myself.

The True Theory of Farming—No. 13.

Lime—Different Combinations of.

Messrs. Editors of American Farmer:

Carbonate of lime, in the form of chalk, was brought up from pits a great depth in the earth, dried, pulverized and spread on the soil in France and Britain two thousand years ago.

Pliny informs us that it added luxuriance to the herbage—rendering it more abundant, sweeter and greener. This chalk exists abundantly in the south of England and the north of France, but I believe has not been found in the United States.

More recently, and especially within the present century, lime is used in various forms and combinations with the same beneficial results in all agricultural countries. Combined with sulphuric acid, and water, as a sulphate, it forms plaster, or gypsum; with phosphoric acid, as a phosphate, it exists in raw bones, and in mineralized bones, as in the great native bone-phosphate basin of Charleston, and also in the South American and other guanos, composed of the excrement and bones, chiefly, of birds. Lime, however, is not the valuable constituent of these manures. The phosphoric acid of the bones, and the same with ammonia and potash, in the guanos, are the chief considerations.

The peculiar effects of plaster also, are to be ascribed, chiefly, to its sulphuric acid. Plaster is one of nature's happy combinations, not only in the inherent value as plant-food of its own constituents, but in its chemical results in administering ammonia. Ammonia is the most expensive of all commercial manures. It exists, however, in the soil in various shapes, and in the atmosphere, in the form of carbonate. In the atmosphere it cannot exist as pure ammonia, because it combines with carbonic acid. As this carbonic acid gas exists in the air in far greater abundance than ammonia, the latter always occurs in combination with it; that is, in the form of *carbonate of ammonia*. This, though found only in minute quantities in the atmosphere, occurs everywhere near the earth and in the soil. Rains, dews and snows remove it from the atmosphere to the soil. It is evolved from nitrogenous organic bodies in and on the soil, in the gaseous form, and escapes unless arrested by chemical union with fixed substances. Plaster and water decompose and convert it into a non-volatile salt called *sulphate* of ammonia; that is, if plaster, water and carbonate of ammonia come together, the result is the decomposition of the plaster and the carbonate of ammonia, and the simultaneous formation of carbonate of lime and sulphate of ammonia. The process may be described as follows: The sulphuric acid of the plaster abandons its embrace of lime, and obeys a stronger affinity by uniting with the ammonia of the other compound, forming sulphate of ammonia. This frees the carbonic acid (of the carbonate of ammonia) in the presence of the lime, which is extricated from the sulphuric acid, and both the lime and carbonic acid being free, unite and form carbonate of lime. It is a double decomposition, resulting in the formation of sulphate of ammonia, and carbonate of lime, out of the constituents of plaster and carbonate of ammonia.

This sulphate of ammonia is a non-volatile salt, and, in the soil, enters slowly into solution administering ammonia and sulphuric acid to the plants. The carbonate of lime, meeting carbonic acid in the waters of the soil, takes a double proportion of the acid, forming bicarbonate of lime, which is soluble and supplies the plants with lime. It is not wonderful, therefore, in the light of its peculiar power over carbonate of ammonia existing almost everywhere—in the water and air of the soil, and in the air above,—that the use of plaster is followed by charming effects on the life and vigor of plants.

In view of its trifling cost compared with that of the substance it prepares and administers to plants, to say nothing of its own constituents, it may well be considered one of the most economical fertilizers in use. But it is only under the influence of water that plaster fixes ammonia. In the absence of water, the effect is the reverse.

Applications of plaster at the time, or immediately after super-phosphates are applied, will not likely be followed by conspicuous results, because the process of rendering the phosphoric acid of bones soluble, results in the formation of plaster, by the liberation of the phosphoric acid and the union of sulphuric acid with the lime of the bones; thus out of insoluble phosphate of lime forming soluble phosphoric acid, and hydrated sulphate of lime, called plaster. This plaster remains in the "super-phosphate," and is perhaps a sufficient dressing, and further immediate additions are likely to prove useless.

Without further reference to the various forms in which lime is *incidentally* employed, with

more expensive manurial substances, it will now be considered in the most economical and beneficial form in which it can be applied, with reference to its own constituents, as plant food, and its mechanical and chemical influence on the soil, viz:

The Carbonate of Lime.

In this form, lime is the most abundant of simple minerals. It constitutes in a great measure calcareous spar, limestone, marble, marl and chalk. In the animal kingdom it forms the principal parts of shells, and a small proportion of the bones of the higher orders of animals.

It is present, dissolved in small quantities, in most all natural waters. In pure water it is considered almost insoluble, but is soluble in the water of the soil, and all other waters containing carbonic acid.

The appellation "carbonate" not only includes the natural forms above enumerated, but that form it assumes after calcination and long exposure to air.

Lime, burned from rocks and shells—pure oxide of calcium, *cannot be kept in this pure state.* Hence there can be no pure lime unless it be *fresh*—recently formed from the calcined carbonates, or from union of oxygen with the metal, calcium. Immediately after pure lime is formed it begins the absorption of water from air, and then carbonic acid. After a time these absorptions are simultaneous in different parts; for when the exposed surface ceases, chemically, to combine with water, it begins to part with its water, (which is either exhaled or is absorbed by inner portions,) and to absorb carbonic acid.

After it has absorbed water, to the extent of its affinity for it, and also necessarily some carbonic acid, as long as it possesses a preponderance of the peculiar characteristic of *pure* or fresh lime, (sensible causticity,) it is called "*hydrate*," on account of the water.

But after another evolution, or rather a continuation of the same change, in which a large portion of the water gives place to carbonic acid, although not completely carbonated, it assumes a mild state, in which it is classed with the "*carbonates*," (although it is a mixture of both forms,) because the carbonate predominates.

So, with the same indefiniteness, the term "carbonate" designates the common uncalcined magnesia of the shops, which in round numbers of per cent. is composed of magnesia 45, carbonic acid 35, and water 20 per cent. This is strictly a mixture or perhaps a chemical compound of carbonate and hydrate, because it contains *chemically combined water, and carbonic acid.* But the latter predominates, and for convenience, or through habit, originating in ignorance of its composition, to distinguish it from a pure hydrate, like the same state in lime, it is classed with the "carbonates."

The changes undergone by lime and magnesia are identical *in kind*, but magnesia changes more slowly than lime. To prevent confusion, we will repeat the changes common to both. Fresh burned lime, pure oxide of calcium, will combine with and solidify water till its composition is lime 76, water 24 per cent.

Fresh magnesia, pure oxide of magnesium, combines with water till its composition is magnesia 70, water 30 per cent. They will not solidify (dry up) any more water. Further additions of water *wet* them, and produce mortar. On prolonged exposure to air they give off a portion of their water and absorb carbonic acid.

But the acid does not, or at least has not been known to take the place of *all* the water, by mere exposure to air; but, it seems, an equilibrium of affinities is reached before they part with all the water, at which the acid ceases to displace the water—that is, in the air, they never after burning have been known to return to pure carbonates. When they have absorbed all the acid they will take, they are "mild" and are designated as carbonates.

To avoid long descriptions and confusion hereafter, we will designate the first state after burning, before slaking, (the pure oxide) as "*Fresh*," which is strongly caustic; the second state, as "*Hydrate*," which is sensibly, but in a less degree, caustic; the third, as "*Mild*" or *Carbonate;* the fourth, as *Bicarbonate*, of lime or of magnesia.

Whilst they appear not to do so *in the air*, there is no doubt that lime and magnesia, in fine powder mingled *in the soil*, in quantities so small as not to admit of forming a mass, mortar, or cement, will become completely carbonated, by the never-ending series of combinations and decompositions they provoke, and enter into, among the contituents of the soil.

Fresh magnesia and hydrate of magnesia, will harden in a wet soil in ten days into hydraulic cement. This is one of the reasons why, in these states, it is worse than lime in the same state; for hydrate of lime will not do so, unless it contains a large admixture, say 30 or 40 per cent, of magnesia.

How are we to ascertain what per cent. of magnesia is in the rocks? If the lime and magnesia are applied in the only proper condition of *mild fine powder*, and thoroughly disseminated, they will not harden nor hurt the soil or the plants; so if properly used, it is all a mistake about magnesian limes being injurious. We cannot conceive of a fertilizer that may not be improperly applied, so as to result in harm to the soil or the plants. But none has suffered so much in this way as lime and magnesia.

Prof. Johnston, (Agri. Chem.) who appears on both sides of all questions, and therefore sometimes must be right, and in this instance is sustained by independent authority, says that—the hydrates of lime and magnesia by mere exposure to the air do not attain the state of carbonate "*within any assignable time*"—and that calcined magnesia absorbs carbonic acids more slowly than lime, and by mere exposure to air will "probably never return to its original condition of carbonate— * * * when allowed to slake spontaneously, three-fourths of it become ultimately changed into carbonate, and form a chemical compound of hydrate and carbonate, which is identified with the common uncalcined magnesia of the shops, (called carbonate) which consists of carbonate of magnesia 69.37, hydrate of (?) magnesia 16.03, and water 14.60,=100, and undergoes no further change by continued exposure to the air." Again, he says—"at least one-fourth will always remain caustic, however long exposed to the air."

It appears, therefore, that there will remain a

sufficient quantity of this ruinous property of causticity, in spite of exposure even for a lifetime, to satisfy the most inveterate persistence in the wrong direction.

We have thus drifted from the consideration of lime and magnesia simply, to their compounds with acids—and why? Because they do not occur in nature in the simple form; and because they never have been and *never can be mingled* in the soil, in this fresh state of pure oxides,—and if they were, they would injure, instead of benefitting the soil. So, also, we have taken the so-called carbonate of magnesia along with the same compound of lime—and why?

Because the principal source of lime, in our country, is the rocks, in which carbonate of magnesia is present with, and inseparable from, the lime. In the burning of the stone, they pass through the same changes,—their evolutions on exposure to air, and mingling in the soil, are analagous; and they are each equally essential as plant food.

Of all forms in which lime and magnesia have ever been applied that of carbonate alone, under all circumstances, appears free from injurious effects, and proves always beneficial to all soils in need of these manures.

Yet strange as it appears, from this point of view, the most ridiculous and strenuous abortive efforts are made, by otherwise intelligent farmers, to mingle them in the soil in their pure caustic state, uncombined with carbonic acid or water. Of course they always fail in the accomplishment of an impossibility, but they nearly always succeed, admirably—in the ruin of the lime and magnesia. Thus, millions have been wasted in chasing a phantom in this direction by sturdy farmers who reason soundly, and look to tangible results in everything else.

If lime or magnesia combined with sulphuric acid as sulphates, be applied to *sour* soils, the acidity is intensified by the addition of the powerfully corrosive sulphuric acid, while if combined with the feeble carbonic acid, in the form of carbonates, the acid of the soil would be neutralized by the release of the harmless carbonic acid from the lime, and the union of the lime and magnesia, thus set free, with oxalic, and other acid vegetable poisons, and also with injurious mineral acids; and the conversion of these to neutral innoxious salts. If applied as soon as possible after burning, at such a time as they will be absorbing carbonic acid during the germination (sprouting) of plants, as heretofore explained, this performance deprives the infant plants of free carbonic acid, which is believed to be their only extraneous sustenance anterior to the development of organs. This is double deprivation, for the hydrate *starves*, while the carbonate would feed the plants during this most critical period of life.

Magnesian Limes.

If the lime be mixed with magnesia, as all our stone limes are, and be applied *at any period*, in a very caustic state, it is ruinous to the *texture of the soil*, just in proportion to the *degree of causticity and the quantity of magnesia;*—while the same quantity of magnesia and of lime, in the *milder states*, would prove beneficial.

It must always be remembered that magnesia remains caustic much longer than lime, and also that its causticity is even more ruinous than that of lime, to the *soil itself*, independent of effects on infant plants.

The immediate effect on plants, germinating in the presence of caustic lime, is perhaps more fatal to small-seeded plants than to the cereal grains; because the latter inherit a larger quantity of food in the larger seeds, which is used at the critical period of emergence into life, and may thus enable the plant to survive the barbarity with less detriment.

Besides, languid growth in these is not so sure to bring on the army of insect or vegetable parasites, that so often sweep off whole crops of turnips, radishes, &c.

But the effect is the same *in kind*, whatever be the crop.

So manifestly ruinous, and lasting, have been the effects in England, to the *soil itself*, attending the use of magnesian limes *in the caustic state*, that for a long while a notion prevailed among the farmers and writers, that magnesia, in any state, "poisoned" the land, and they struggled to hunt up limestones free from it, and thus to avoid the use of a substance that enters far more largely into the grains than lime, and without which *no agricultural plant can mature!* How were they led thus, in the opposite direction from truth? The opinions into which they drifted, however strange they appear from a proper stand-point, were not without plausible support from *their* stand-point of view; and like all other notions prevailing among respectable farmers, they found ready prop among the more popular journals and books, whose patronage depended less upon efforts to mould and control public opinion, than upon fidelity in *reflecting* it.

They believed lime, in its mild state, to be inert; and that it ought to be mingled in the soil in the freshest—most caustic state possible. Hence they did not allow it to slake spontaneously in open air, where it would become mild by absorption of carbonic acid, but covered it with sods, &c., to protect it from the rains, and to retain its "active" caustic properties.

In those parts of the kingdom where limestone occurred, the stone containing more or less magnesia was the source of lime.

They mingled it in the soil in fine powder, as fresh as possible. Its fineness, and the presence of magnesia, *in this caustic state*, intensified, and prolonged its injurious effects.

Its "hot" "burning" effects (to use the words of Prof. Johnston) were ascribed to the presence of magnesia, because in those districts where the chalk and marls existed, which contained no appreciable magnesia, these were used with no such "hot or burning" effects.

The first and most fatal mistake that led to this long and yet unbroken night of error and ruin, was the supposition that lime was most useful, and not injurious, in its caustic state.

Second—ignorance of the fact that magnesia is still more injurious, and remains longer in the caustic state than lime, and *is as harmless in the mild state as lime or any other manure.*

In ignorance of this they associated the evil with the magnesia instead of the *freshness;* and were confirmed in this view because they found the "burning" effects in *proportion* to the quantity

of magnesia in the stone, and entirely absent in the chalks that contained no magnesia.

Whenever the burning took place magnesia was present, and in its absence no bad effects ensued.

It is true, the chalks might have been made caustic, by burning away the carbonic acid. But even then, the evil would be that of caustic lime only and far less than that of caustic magnesia. The prevailing practice, however, was to pulverize without burning the chalk, but always to burn the stone.

Why have I thus taxed the patience of your readers in tracing the origin of this error? Because I have assumed the great and invidious task of its extirpation, and because like myself, farmers, generally, are slow to abandon the persistent practice of a century without plain reason, and an understanding of the facts that gave rise to, and the support that upheld the usage.

Shenandoah Co., Va. L. H. McGINNIS.

What Fertilizer?

BY JOHN I. CARTER.

We are indebted to the author for a copy of an essay bearing this title, read by him before the "Eastern Experimental Farm Club," January 25, 1877, and which we give below. It is seasonable and instructive:

As the time is coming around for farmers to buy their spring supply of fertilizers, I would like to again call their attention to the importance of making a good selection. There is no part of farm operations involving the expenditure of much more money, or which is more uncertain as to investment and results, than the annual purchase of fertilizers. Even in a neighborhood like this, which is not noted for its extensive use of fertilizers, the warehouse supplying it is reported to have sold $7,500 worth the past season. Hence, you can readily see that a few dollars difference in price will aggregate to a serious difference to the farmers of our whole country. And the sales of fertilizers must increase from year to year, for beyond a doubt their judicious use is not only profitable but almost a necessity. In the face of numerous experiments here and elsewhere it will not do to deny this; neither will it do to oppose the use of good commercial fertilizers, as some do, on the ground that they are only stimulating and not an enricher, like barn-yard manure. It is true that almost any manure we can use that will secure a series of heavy crops, will, if these crops be taken off, leave the soil poorer to that extent, for we cannot have our loaf and eat it.

But in our case barn-yard manure has not been as permanent in its action as good super-phosphates. I will give two examples. In 1874 we applied fertilizers on sod for corn, using $10 worth per acre. On another plot we used barn-yard manure at the rate of 20 horse cart loads per acre, a good cost surely, and one which would have cost us, had we bought it, nearly four times as much as the super-phosphates. The results were as follows:

Kind of Fertilizers on Plots.	Bus. Corn per acre in 1874.	Bus. Oats per acre in 1875.	Bus Wheat per acre in 1876.
No Fertilizer	45 8-72	18 18 32	8 2-60
Barn-yard Manure	81 24-72	27 8-32	15 32-60
Bone Super-Phosphate.	80 24-72	28 24 32	24 10-60
Rock Super-Phosphate.	84 8-72	29 16 32	25 12-60

In another series of plots we applied fertilizers in 1875 about as above, resulting as follows:

Kind of Fertilizer.	Bus. Corn in 1875.	Bus. Oats in 1876.
No Fertilizer	68 64-72	23 24-32
Barn-yard Manure	93 64-72	29 8-32
Bone Super-Phosphate	95 45 72	30 8-32
Rock Super-Phosphate	81 48-72	29 16-32

I could quote numerous experiments made on the Central Experimental Farm, with the same general results, all tending to show that barn-yard manure is not as permanent a fertilizer on our soils as is a good super-phosphate. In this connection I might again repeat that I have found a soluble phosphate of lime to be the fertilizer most needed on our soils.

Now, in what form can you buy this ingredient the cheapest? is the point I wish to call your earnest attention to in this paper. Manufacturers of fertilizers recognize the value of analysis as indicating the character of their goods, and those that are reliable are willing to sell on a guarantee warranting the quantity of valuable ingredients contained in the fertilizer sold. In this matter they are really in advance of the farmers. They are willing to sell on intelligent principles, while many farmers have been largely guided in their purchases by their noses only.

For some time past I have urged the purchase of a well-dissolved South Carolina rock, as probably the cheapest source of soluble phosphoric acid, but many farmers seem to be looking after low-priced articles of rock, thinking them to be the cheapest. But it must not be forgotten that they are only valuable in proportion to the soluble acid they contain, and that a low-grade article is proportionately dearer than a high grade, because of the freight on the useless part of the fertilizer. For instance, say a reasonably good article of dissolved South Carolina rock, showing 10 per cent. soluble acid, can be bought in the city for $30 per ton. Then we have these figures: Ten per cent. of one ton is 200 pounds, which at $30 is 15 cents per pound for soluble acid. Suppose the freight on one ton to be $2. Then on the 200 pounds of soluble acid it would be one cent per pound additional, or the whole cost of 16 cents per pound. Our usual application per acre is 666 lbs. of acid rock, or 66⅔ lbs. of soluble phosphate, which, at 16 cents, is $10.64 per acre. Now take a high grade superphosphate, such as the Challenge, costing $65 per ton. That will show 31 per cent. of soluble acid, or its equivalent, and we have these figures: Thirty-one per cent. of one ton is 620 pounds, which, at $65, would be 10½ cents per pound, and $2 per ton for freight would be one-third cent per pound on the 620 pounds, or whole cost 10 5-6 cents per pound; and hence 66⅔ pounds, the amount used per acre, as above stated, would cost $7.21, or a saving by getting the soluble acid from this source of $3 43 per acre, or, on 20 acres (your corn and wheat fields) the snug sum of $68.60. The increased labor in handling the low-grade article is also quite an item of expense. In our experiments with the Challenge and other

grades and makes of super-phosphates, I have found but little difference in the *value* of a pound of soluble phosphoric acid, from whatever source it may be obtained.

Protecting Tobacco-Plant Beds.

Messrs. Editors American Farmer:

Tobacco-growers in the Connecticut River Valley have used, to a limited extent, and are gradually increasing the use of cloth screens, as recommended by Nansemond and also approved by Maj. R. L. Ragland, in the *American Farmer* of January and February, current vol., not for the sake of protection from the flea or other insects, but in order to forward the plants, and also as protection from inclement weather, frosts, cold winds, &c. Such has been practiced for several years; the same advantage is gained as would result in the careful use of glass, without the liability of injuring the plants by burning, &c., by neglecting to open or draw the sash when the sun shines brightly and hot. The practice of making, &c., tobacco-plant beds here at the north is somewhat different, and was fully described by me in the *American Farmer* some two or three years since, so that I need not here repeat it in full.

Instead of using so much ground for beds as you do, we sow a greater quantity of seed, broadcast, on less ground—a bed 16½ feet square, or its equivalent, being sufficient to supply good plants for one acre, where only a single acre is grown; where several acres are grown a much less proportional-sized bed is used, say three times the size will supply plants for five to eight acres, and then there will be quite a surplus to come on late for resetting, &c. Our beds are all thus planted, whether protected or otherwise. In order to grow plants in this way the beds have to be *very highly enriched* with manure and fertilizers. Very few of our tobacco-growers make anything as expensive frames as described by your correspondent Nansemond, but only take some rough boards, six or eight inches wide, set some stakes at the corners, and wherever necessary to keep the boards in position, set the boards on a level with the bed, haul earth up at the bottom, and then tack on plain unbleached cotton to cover the bed and frame; some have improved on the plain cotton by oiling it with linseed oil, when it lasts longer, with some other advantages.

W. H. WHITE.

Westboro, Mass.

Errors as to Potash Manures.

Messrs. Editors American Farmer:

The detection of the capital error with regard to potash, required a *series* of experiments during twenty consecutive years—though managed by the most expert men in Europe—because they were watched by such men as Baron Liebig and all of his disciples and admirers throughout the world who had read his "mineral theory." The rare characteristic of Baron Liebig was his fearless honesty in promptly recanting any error; for instance, when the mine of potash was discovered at Strasfurth, he pronounced it equivalent to a mine of sugar, as a producer of the sugar beet; but when the sugar made from the beets, manured with the native potash, (or "Kainit,") was found impracticable, he promptly admitted his error, and no doubt gave the reason why the sugar cannot be separated from this salt of potash—precisely as "common salt" appears in the peach when manured therewith—on account of *its* solubility.

We imagine that the insoluble sulphate of potash is also preferable, though made from the Kainit or muriate, and consequently double the price—because, like plaster or sulphate of lime, both of its constituents are more essential as manures than if muriates. It may, however, be economical to substitute the Kainit in the production of forage and the cereals, but no individual, nor farm, can decide such questions.

Since the "error" of Liebig has been published, Kainit has been recommended in Virginia by the most eminent of the professors of agriculture—moreover, the *original* letter of Baron Liebig is republished to endorse this error.

The contest with regard to the mineral theory as the specialty of Baron Liebig, was no doubt protracted by the fact that both parties were right to some extent. As Lawes and Pusey have now admitted that any good soil will produce three bushels of wheat per acre—if manured annually with ashes alone—and average this during twenty years (*as a surplus*) over what the same land *can* yield with the *best* cultivation, but without the annual supply of the *ashes* removed in each crop.

This being satisfactorily demonstrated *as the ultimatum*, it is manifest that neither potash nor phosphate can ever pay—however illusive the *apparent* results of their use—though endorsed by the best authority and reasoning of all past ages. We always contended that no manure could prove *generally* efficacious unless it contained *all* of the elements removed by the crop—*including ammonia* in relative proportion; but subsequent experience in the use of *such* "fertilizers," and many careful observations by weight, measure and specific gravity—of results—proves that all fertilizers, *thus compounded*, are not only too severe a test for human nature, but otherwise mischievous in proportion to their apparent success, above the more simple fertilizers such as potash or "phosphate." Stable manure and compost is, and always has been, the only economical *universal* fertilizer or panacea.

"Let us dig about it and dung it" is the last resort, and rather more than the mere classical expression of Cato, viz: "Study to have a large dung-hill," though more than 2,000 years ago, or even the more particular directions of Virgil, who succeeded him, and included in the same category "ashes." "The mud from sewers and ditches" was used as a manure in the age of Collumella, (see 15th chapter of 2d book,) and "the basin" of Baltimore would no doubt inspire Baron Liebig more than "the Emma Mine"—if we may judge from *the last* efforts of his genius in Europe. But the natural and peculiar shape of the cedar trees around Baltimore specially indicate a *local* and *annual* supply of this peculiar manure, which no farm can produce in proportion; and those farms more remote from a city which cannot possibly supply one-half of the manure, (in proportion to the labor required for their cultivation,) though remote from a

market, will ever find its *purchase* in this form the more ruinous—because more illusive than any other.

He who *purchases* that which he does not want pays dearly for the whistle at any price; but with regard to stable manure or compost, the proportion of freight necessary must ever determine the relative value to that of the element thereof which the soil happens to require. Whether that element from some INorganic source is equally efficacious *as a manure*—be it potash or phosphoric acid—or whether as in mineral springs, such *natural* combinations must be preferred? are two questions which no expert in any college of agriculture has answered, and when they do we may give the probable philosophy for preferring stable manure or compost which must ever remain in the same category as "indications" in weather.

Delaware. D. STEWART, M D.

The American Farmer—The Need and the Benefit of Agricultural Literature.

Messrs. Editors American Farmer:

Your last number—full of useful information for farmers who are not beyond learning from books—is received. I have always been an advocate for disseminating information on agricultural subjects, through the medium of such periodicals as yours, and although we have an excellent paper published in Richmond, have, on all proper occasions, recommended the "*American Farmer*" as the most practical and cheapest vehicle through which such knowledge can be imparted. Not that I would have everyone, under all circumstances and in every locality, to follow implicitly the instructions given in it—for no one can do this with any paper without bringing ruin on himself—but to exercise a sound discretion in adopting such recommendations as may be suited in each case: in this way the advantages of the paper are incalculable.

If such reading did no other good than furnish, as it does, food for thought; admonish us of our duty to the soil; what is proper in the management of the labor we employ; what we owe the dumb animals under our control, and teach us the care of implements, it would pay. Or, as the wise Dr. Johnson more aptly expresses the idea: "men do not so much need the telling of new truths as to be reminded of old ones."

I believe that agricultural reading is just as indispensable in making a good farmer as medical or law books are in contributing to the acquisition of a profession. True, every empiric can administer medicine, and every pettifogger spout law, as every ignoramus can perform the mere mechanical operations on a farm; but neither, for want of skill in his calling, is entitled to rank as a proficient, or can hope to attain success with any degree of certainty.

How any one, especially a young farmer, can get on without some periodical on the subject, is past my comprehension. I have been engaged in agricultural pursuits nearly forty years, and, as Judge Marshall said on one occasion to a flippant attorney, "am presumed to know something," yet I can truly say I scarcely ever receive a "*Farmer*" without learning more from it, if put in operation, than would pay the price of subscription.

If any calling on earth is more dependent for thorough development upon general knowledge, teaching judgment, discrimination, forethought, system and close application, I am ignorant of it. While we cannot, in the nature of things, class agriculture with the exact sciences, yet it is entitled to rank first and highest among the arts; although, sad to say, now low down in the scale from causes which it would take a long time to enumerate, and if told would probably end in no good. But in general terms, *the bliss of ignorance and the folly of wisdom*, inviting imposition from tradesmen, are at the bottom of its *depression;* and the war which is made upon it by all consuming industries, controlling the legislation of the country, without the nerve and talent to resist on its part, is at the top of its *oppression.*

I hope Mr. ——, through whom my subscription is paid, is getting along well. I will do all, as opportunity offers, to help him in his good work; for I am sure, in extending the circulation of the paper, I should do good service to the interest of agriculture.

Very truly, your friend, ——.

King George, Va, Feb. 7, 1877.

[Were we called upon to designate one of the most competent men on our list to discuss the subject embraced in the above letter, we could not select a more suitable person than the writer of the above—one of the oldest and most esteemed of the sons of the Old Dominion, and standing in the highest position, in every respect, among the best of the land. We only regret that, for reasons satisfactory to ourselves, we do not annex his name.—*Eds. A. F.*]

Burning Tobacco-Plant Beds with Kerosene.

Mr. T. W. Leigh, of Halifax Co., Va., writes to the *Southern Planter:*

As my main plant-beds were so unpromising last spring, I determined to burn another small bed with kerosene oil, as I thought it a very quick and cheap way. I therefore picked a fine exposure very near a branch (but not a flat,) and burnt about one hundred yards. I raked and swept off the patch thoroughly, just as I would to burn with wood. I then put back a light coat of leaves, and poured on about four gallons of oil, and set it on fire. It made a very quick and hot fire, burning the land tolerable well. I then prepared and sowed the patch in the usual way, chopping in a very heavy dressing of guano, and covered the patch very lightly with wheat straw. From the time the seed came up, which was very soon, as they had been in soak several days, I did not allow the plants to suffer one day for either manure or water—putting on water sometimes twice a day. The seed were put in the ground the 3d of May, and by the 10th of June the bed had in it more plants large enough to plant than I ever saw in any spot of the same size.

Our French Letter.

Fattening Beef Cattle.

Messrs. Editors American Farmer:

An old stock-breeder who has made his fortune, states thus the principles he has always observed in fattening cattle. An ox generally requires five months for fattening, and during that period will consume as much food as a milch cow during a year. If the animal be fed on hay exclusively, it will consume about 40 pounds of it daily, representing 2 pounds of flesh. It is preferable to give only 10 pounds of hay, with 60 or 80 pounds of cut roots,—the flesh-producing value of this dietary being about the same. When potatoes are employed, they should be given in equal proportions with roots—beet if possible, and never cooked, commencing by degrees, to avoid scouring. If beans be employed, when not coarsely broken, they ought to be steeped for 24 hours. Twice a day is sufficient to feed the cattle, at 6 in the morning and 4 in the afternoon, thus affording longer intervals for repose; and when the feed is given, it ought to commence with a little hay, then good water, next roots, with cake or grains, and lastly a little hay as dessert. The stock should be "groomed;" the sheds to be kept rather dark and warm. The animals ought to be weighed once a week; where there is no machine, a tape measure applied round the chest, and marked, so that the inches represent so many pounds weight, will form not a bad tell-tale. Cattle in "flesh," but not fat, have their dead net meat, one-half their live weight; when putting up fat, the former will represent 5 to 10 per cent. more.

Aid to Agriculture.

The Legislature has voted fr. 12 millions for the agricultural budget and its nine chapters, being a considerable increase over previous votes. In this total is included the grants for the restored "National Agronomical Institute," at Paris, devoted to the highest form of agricultural education, and which has just been inaugurated. Twenty-four pupils were admitted after a most brilliant examination, six of whom are foreigners, mostly from South America. There are 83 auditor students. The three veterinary colleges of Alfort, Lynn, and Toulouse, have 690 students There are three Regional Agricultural Colleges, of which one, that of Grignon, outside Paris, is the chief, and perhaps the first of its kind in Europe, has ninety-six pupils. The number of farm schools is thirty-three, attended by 720 pupils, involving an expense of fr. 723 per pupil.

The Exhibition of 1878

will be for agriculture a series of shows; and if only one-half of the proposed ideas be carried out, there will be ample marvels for the visitor. M. Goffart has secured space to exhibit his plan for conserving green fodder, rye, clover, maize, lucerne, &c., in trenches, for feeding throughout every month in the year, and by means of which his stock are never placed on short commons, and the expense of their feeding seriously diminished. Fodder in a green state will be cut before the public, conveyed into trenches, &c., by means of improved machinery, and cattle will be on the spot to consume that which has been in other trenches for months. This plan of dealing with green food has completely revolutionized French farming.

The Weather in France.

To judge of the mildness of the winter in the neighborhood of Augonlême, oats sown in the early part of last October are now in ear. This being too advanced a stage to be fed down by sheep, farmers propose ploughing in the crop and sowing barley or spring oats. The season has also told on the beet-sugar factories; the roots, owing to the abnormal temperature, were rapidly deteriorating, and hence fresh loss on one of the chief agricultural industries of the north of France. Too many farmers rushed into the production of beet sugar; hence, also, the bitter deceptions experienced by many. Now, that the price of sugar has risen 40 per cent., it is to be hoped cultivators will proceed cautiously.

The Phylloxera.

There is only the same sad story to record touching the phylloxera—the bug extends the area of its devastations and no remedy has been found efficacious. The sulphuret of carbon still heads the list as an excellent poison, but its judicious and economical application have yet to be resolved. Driving about the roots of the vine cubes of wood steeped in a solution of the sulphuret, is the plan generally adopted. Wood charcoal is now suggested; when impregnated with the chemical, it is to be preserved under water till spring, and then dibbled in about the stems of the vine.

M. Goffart made a singular experiment, and perhaps a more singular discovery; he steeped maize in a solution of sulphuret of carbon—the vine-bug antidote—to destroy wevil; only one grain of maize in every twenty thus treated germinated, while nineteen out of twenty of the unsteeped grains vegetated.

Dodder in Clover.

Dodder continues to be a serious nuisance in clover and lucerne fields; it has now been fully established, that even where this parasite is carefully excluded by sieves from the clover seed, the dodder not the less appears. The wind is accused of wafting the seeds of dodder, and partridges and sparrows are denounced as spreaders of the weed also. Farmers despair of conquering the pest—even with strong saline steeps, for clover seed, &c.

Antidote to Injury of Apple Trees from Rabbits.

A Belgian gardener states, that his apple trees suffered severely during hard winters from hares and rabbits eating the bark; M. Waltbery tried tar, but this injured the circulation of the sap in the bark; he prepared a solution with dog's excrements, washed the trees with it, and since no "puss" has ever troubled him or his neighbors.

Paris, February 13, 1877. F. C.

Sowing Orchard-Grass Seed.

Messrs. Editors American Farmer:

In your February No. I see an article recommending sowing Orchard-grass at the rate of twenty pounds to the acre, and six or eight pounds of clover seed on the same ground. I think this quantity of orchard grass is a little too strong, especially if he expects to save seed from

it. The quantity of clover seed is about right. For the benefit of my fellow-farmers, I will give my mode of sowing orchard-grass seed and clover seed, if you will give it room in your valuable journal. I do not think orchard-grass seed ever ought to be sown without clover, as the first year the growth of orchard-grass is small and even the growth of clover will be fine; the second year the crop of orchard-grass will be good and the clover will not interfere in saving the seed, as the orchard-grass will get ahead of the clover sufficient to top it for seed, and the pasture is so much better with clover mixed, as is also the hay if you should want to mow it.

My plan for sowing my orchard-grass seed is, mix six pounds of clover seed with fourteen pounds of orchard-grass seed, place them in a mixing or feed-trough, mixing the two seeds thoroughly, and then pour in about one and a-half to two gallons of water, making them thoroughly wet, and then I put plaster in until each seed separates, stirring as I put the plaster in. Any one who has orchard-grass to sow that will try this plan, will be convinced at once that this is the only true way to sow it. It will only need to be sown one way. The plaster, clover seed and water will give so much weight to the orchard-grass seed that there will be no trouble in spreading it, almost equal to wheat.

Yours respectfully,

JNO. B. MILLER.

Rappahannock Co., Va., Feb. 19, 1877.

From Our Corresponding Editor.

The correspondents of the corresponding editor will please address him hereafter at Montpelier, Richmond Co., N. C., it being more convenient to his residence than Shoe Heel, (now Tilden) Robeson Co., N. C.

Plant Corn.

Now that the ides of March are upon us and the momentous issue as to what we should plant must be decided, we would cast our vote emphatically for more corn and less cotton throughout the South. It would be a revolution indeed, but one that would achieve miracles for the recuperation of our sorely-pressed people. We would no more hear the wail from the snowy fields of the South: "Cotton cannot be made for what it will bring!" Little cotton would bring much, and be a very "king" in the market, when now it lies in beggarly rags and sackcloth! It would be the loadstone to draw all the magnets from the North and Europe, and the hoarded gold besides. The man with *one bale, then*, would reap more reward than he with *ten now!* And the corn. It would prove the hero of the campaign. Our homes would indeed be our castles in its abundance. Lean kine and cholera-slandered hogs—"et id omne genus"—would disappear, and in their places, as if by magic, would come forth the "seven years of plenty" race—smooth, round and glossy. Plenty would be in all our borders. The "cattle on a thousand hills" would rejoice. The people would catch new inspiration and impetus, and the South would be redeemed!

The *Son of the Soil* New Orleans, makes the following appropriate remarks on this subject:

We have often heard it remarked that it is folly to attempt to raise your own corn, for then it never is worth anything. Supposing it is not, Is not the producer assured of his future if his cribs are full to overflowing? Is he not far more independent than the man who has none, even if its commercial value is trifling?

The true secret of all successful farming is to raise your own supplies and sell only your surplus. If this course could be universally adopted we should hear no more complaints that "farming don't pay," we should find no more first, second and third mortgages on our farms; everybody would be prosperous and money would jingle in every man's pocket.

We have not attempted to write an exhaustive article upon this subject, though it is well worthy of our consideration. Neither would we confine the self-supporting labors of the farmer to corn alone. There are many other kinds of grains, roots etc., etc., which every farmer should raise, if he uses the prudence which other industries demand. Especially should the vegetable garden be a prominent factor in every farmer's table of values. With an abundance of corn, potatoes, cabbage, pumpkins, turnips and the hundred other "trifles," he can be as independent as a king and be happy himself and make everybody and everything around him happy also.

As we said in the beginning of this article, now is the time to determine just what and how much shall be done. And we do not fear that too much can be done, but it is not wise to attempt what cannot be well done. It is folly to waste time and labor by diluting the energies and means and endeavoring to cultivate a hundred acres, when better results can be obtained by concentration upon ten.

Let the present year be one of thoughtful and intelligent labor. Let the head devise before the hands attempt to execute. Let us have a little more brain work and we shall not require so much muscle. We must learn to systematize our labors, if we desire to obtain for them the greatest rewards.

Danvers Carrot.

In the town of Danvers, Mass., the raising of carrots on an extensive scale, says Mr. Gregory, has for years been quite a business—the farmers finding a large market in the neighboring cities of Salem, Lynn and Boston. After years of experimenting they settled upon a variety which originated among them (as did the Danvers Onion) known in their locality as the "Danvers Carrot." It is in form about midway between the Long Orange and Short Horn class, growing very generally with a stump root. The great problem in carrot-growing is to get the greatest bulk with the smallest length of root, and this is what the Danvers growers have attained in their carrot. Under their cultivation they raise from twenty to thirty tons to the acre and at times even larger crops. This carrot is of a rich dark orange in color, very smooth and handsome, and, from its length, is easier to dig than the Long Orange. It is a first-class carrot for any soil.

The Dairy.

New York Dairymen's Association.

We continue our extracts from the proceedings of this society. In our January No. we gave a paper on the Ayrshire cow, and now present another from Hon. *Harris Lewis*, on

THE SHORT-HORNS FOR THE DAIRY.

Mr. Harris prefaced his remarks upon this subject by quoting an extract from a paper read before the Blandford Farmers' Club in October last by Mr. Daniell, and published in the *Mark Lane Express*, giving a brief history of the Short-Horns, and their origination by Colling and others. He then said:

"The success of Charles Colling induced other breeders to adopt his methods, and from that time the present fashion has ruled the efforts of nearly all our breeders of short-horns.

The almost fabulous prices paid for highly bred short-horns of the most fashionable strains, have led to the utter neglect of their value as dairy stock, and have brought them into disrepute as milk-producers.

However much the breeders of short-horns for the dairy may regret this, we cannot but admire those breeders who have attained so high success in their efforts, nor do we covet the compensation received for their skill and care.

Very many predict that the fashionable breeding of short-horns, as it is called, will have its day, considering it as a matter of speculation merely. This may be so, but I predict that, so long as the yearly offspring of the fashionable cow will sell in the market for from ten to ten hundred times as much as her annual yield of milk is worth, the present course of breeding will be continued, if every drop of milk should go to grass.

I have often seen the mistake I made in my first investments in short-horns. Living, as I do, in the county of Herkimer, where the very nest-egg of the cheese dairy interest was deposited (if not hatched) I had reason to suppose that the dairymen would have a desire to improve their dairy stock. Acting on this supposition I have invested in the milking strains of the short-horns only.

But after a careful study of the ways, wants and practices of the majority of the dairymen of Herkimer county, it is evident to me that they are five hundred years behind the dairymen of the counties of Durham and Yorkshire, England, in the improvement of dairy stock. Yet these same dairymen have listened with marked attention to the many words of wisdom which have fallen from the lips of the honored President of this Association, Mr. Willard. They have also read with much more satisfaction than profit the oft-repeated good advice from his pen, but preferring his practice to his precepts, and his example to his preaching, they have become joined to their idols, and such scrub dairy stock as other people do not want, and will sell cheap. Had my efforts been directed to breeding fancy stock, that stock would have had a value and been salable. Although I might not have received the prices paid at the great sale at New York Mills, September 10th, 1873, yet with undying hope I could have kept those prices in view: prices never before paid, and probably never to be paid again.

The short-horns when bred for show, according to the fashions which have prevailed for more than fifty years, produce superior show animals; and when bred for milk, as some families have been for more than one hundred years, they produce superior milking stock.

If any one doubts the value of short-horns for milk, I will refer him to the great dairy show held in October last, at London, where they are best known as milkers and where they have been longest and most carefully bred for milk. The short-horns at that show carried off the great prize of one hundred guineas offered for the best milkers, and, in fact, every prize but one offered for dairy cows, except those offered for Jerseys.

[Mr. Harris gives an extract from the report, showing that at the show the prizes for cows for "dairy purposes" were carried off by the short-horns, over Yorkshires and Ayrshires, and all others but the Jerseys. The report includes the following: The London *Field* says of sixteen groups entered to compete for the magnificent prizes, fourteen groups were short-horns or crosses, and two groups were Ayrshires. In class four, the one hundred guinea cup for the best Channel Island cows, there were six competitors. The Jerseys took the first honors; the second prize went to Guernseys, and the second on a single cow was awarded to an Alderney."]

I could present a great many records of enormous yields of milk by short-horns and their grades, but will say that the best dairy cows I ever owned or milked, were short-horns or grades, possessing from one-half to seven-eighths short-horn blood.

To sum their milking qualities up in a nut-shell, I will declare them capable of giving from one pound of milk per day to one hundred, if the records here be true; and that the quantity of milk they produce is in exact proportion, as a rule, to their breeding, food and care. And this very quality possessed by them in a greater degree than by any other breed of cows adds vastly to their value as dairy stock.

For certain reasons of my own, I prefer thoroughbred short-horn cows of the Princess family, to any other or to all others for the dairy. Yet I am willing to admit that the calves raised from our best native cows, sired by a thoroughbred short-horn bull of a milking family, if properly managed in rearing, will insure cows of equal value to the thoroughbred for dairy purposes only. In conclusion I will give my reasons for the choice I have made for my dairy, as follows:

First. The short-horn cows have good teats and nice square bags.

Second. They are very quiet and docile.

Third. They make the best use of the food consumed of any breed.

Fourth. If not giving milk will lay on flesh.

Fifth. If not good for the dairy they can be cheaply turned into good beef.

Sixth. They yield a large quantity and good quality of milk, well adapted for the manufacture of both butter and cheese, and also well adapted for the market.

Seventh. The well-bred short-horn cow is decidedly good looking. Now if any man in this association objects to beauty in the dairy cow, I hope he will arise and remain standing until he can be counted.

Eighth. I prefer the short-horn cow for the dairy because she will produce the most milk, the most butter, the most cheese, and the most beef, for the food consumed, of any breed of cows we have.

Management of Milk and Butter.

Mr. T. J. Betts, of Carroll Co., Md., writes to the Westminster *Advocate*—a journal which takes a decided and intelligent interest in agricultural matters—an interesting letter on butter-making, from which we extract the following:

Setting Milk.

After careful investigation of the various modes of setting milk I have adopted the deep can system, using tin cans 17 inches deep and 8 inches in diameter, filling them within one inch of the top and setting the cans in a vat of cold spring water, 16 inches deep; this brings the water on a level with the milk in the can and keeps the whole milk at an even temperature. After setting for 24 hours the cream is carefully removed, a conical or funnel-shaped skimmer being used; this skimmer is made of tin and is three inches in diameter and three inches deep at its deepest point, with a straight handle attached to the inside a little below the rim. The handle being on the inside allows the cream to pass freely into it from all sides, permitting all the cream to be removed without agitating the milk; in no instance should cans exceeding 8 inches in diameter be used. I purchased some of 9 inches and had to use them for cream exclusively, the milk in warm weather souring in 24 hours, whilst that in the 8-inch cans remained sweet for 36 hours. It will readily be seen that by using deep cans the labor of caring for the milk is greatly reduced and that room is economized, it taking but 8 superficial feet of vat surface to accommodate 10 cows.

Churning.

In churning, a No. 7 Blanchard churn is used, that holds from 15 to 18 gallons, and has two handles, it requiring two persons to churn that quantity of cream. If the weather is cold, the day previous to churning the cream is brought to the stove and the room kept at a temperature of 70°; this has been found better than to bring the cream suddenly to the stove on the day of churning, and exposing it to fierce heat for a short time. By the former mode the cream becomes ripened and the butter all comes at one time. I have suffered a loss of 3 or 4 pounds in thirty, by churning ripe and unripe cream together, before experience taught me the cause. There is one thing about churning that I do not understand, namely: the time required to bring the butter. All authorities say good, solid butter should come in 25 to 40 minutes; now with me it takes from one to one and three-quarters of an hour, averaging one and a half hours; it makes no difference, June or January, it is all the same; the cream is brought to the proper temperature of 65 in winter and 58 to 60 in summer, but without avail. Several times I have had it to come in less than an hour by making the cream unusually hot, but it was always at the expense of quantity, and slightly as to quality. If any of your numerous readers can give me a remedy and show me how to bring *my* butter in thirty minutes, they will receive my grateful thanks.

Working.

After the butter has gathered and the buttermilk is drawn off, one and a half gallons of water is added and the butter slightly worked with the dasher of the churn; this water is drawn off and a second supply added, and the process repeated; the butter is then taken from the churn in lumps of 10 or 12 pounds and placed upon an oak table that has been previously well scalded, and flattened out to a thickness of one and a quarter inches with a large oak paddle; a cotton cloth that has been wrung out of cold spring water is spread over it and with another cloth doubled in the hand, it is thoroughly patted over, the cloth is removed, and with the paddle the butter is rolled up, flattened out, and the cloth again applied; this continued until all moisture is removed, *sifted* salt is then added at the rate of one pound of salt to twenty pounds of butter, and well worked in; after all the butter has been worked it is allowed to set until next morning, when it is again worked over and printed in half-pound square prints. For cloths small pieces of new muslin 3½ inches square are used; these are put on bias. It is best to purchase salt by the sack, as the salting capacity of different samples vary considerably.

Some persons prefer using the hands in place of the paddle in working butter, and when the hands are of the proper temperature there is no objection, certainly not upon the score of cleanliness, for the man or woman who is not clean in all their appointments is not fit to touch butter with a long-handled fork.

Coloring.

Unless one has better feed than it has ever been my good fortune to possess, there will be times during the winter when the butter will be too white to command the best price, hence it is important to understand the question of artificial coloring. Where small quantities of butter are made, carrot-juice will answer, but sometimes an ill flavored root will escape detection. Annetto is generally used, and is also unsatisfactory, requiring considerable skill in its application. In spite of the greatest care some churnings will come red or copper-colored, betraying the source from which the color was obtained. For the past three years I have used a preparation of annetto, that has never failed in producing the proper shade, and can be used by the most careless with the certainty of producing butter of a uniform color in any number of churnings. It is prepared as follows:—Put ½ lb. annetto and ½ gallon clean spring water in a stone vessel; in a separate vessel put ½ lb. sal. soda, ½ lb. potash and ½ gallon clear spring water, set in a warm place, stirring frequently; when all is dissolved and settled, pour the clear water from the potash

and soda into the annetto, stir well and strain through a coarse cloth. Use one tablespoonful to ten quarts of cream, more or less, according to the color desired, to be put in the churn at the commencing of churning; keep in a stone jug, as it is affected by light. This is a dead shot sure, and to the uninitiated is well worth a year or two's subscription to your paper.

In all departments of butter-making cleanliness should be religiously observed. It will not do to be clean in manipulating the butter alone, but it must be extended to the stable, the cows, the dairy, the cans, in fact to everything in any way connected, even to the water that the cattle drink. It is my candid opinion that filth having once entered the milk there is no known process by which it can be removed. T. J. Betts.

Live Stock.

Management of Horses.

Mr. Ira H. Coleman, a well known breeder, gives the *Turf, Field and Farm*, his views on their care as follows:

I like to keep a stallion in good condition through the winter—strong and vigorous, with plenty of outdoor exercise. In stormy weather I place them in a roomy box-stall, with plenty of light and ventilation: give them two pails of water—in cold weather that is enough for any stallion in a day—with good timothy hay and oats; four to six quarts daily will keep most of the stallions in condition. I am very partial myself, as a winter feed for stallions, to mix oats and ship-stuff in equal parts; six to eight quarts daily fed dry would be enough to keep most of the stallions in good shape and condition. If the horse should get a little off, work him occasionally. Don't think much of feeding wet feed, winter or summer, only in case of heaves; think nature has made all of these provisions; don't think fine grooming very beneficial to a stallion in winter, if you want a fine glossy coat during the season; many feed potatoes and carrots, very successfully in winter. With the above feed, treatment and usage, have never lost a stallion; never have lost but one stallion (my Star stallion) by influenza or distemper during the season of stinting mares. I always tie and hobble them, and never have had an accident or injury occur to either during my experience. Cleanliness always ought to be observed in the care of stock.

I now take up brood mares. During the winter months, I never house my mares; give them plenty of shed-room to go under if they choose; have generally plenty of wheat-straw to run to in a stack; give them all the oat-straw and corn stalks they want to eat; am very partial to corn-stalks for brood mares; let them have running water to go to; feed no grain until the approach of spring, then place them in box-stalls, with outdoor exercise; never confine a brood mare if you want strong, healthy colts; during spring feed them plenty of good timothy hay; oats alone are good; corn on the ear is also good for a change; but would prefer the oats and ship-stuff in equal parts. To strengthen the feed, one-quarter corn meal or the same quantity of middlings added; four to six quarts, with good hay, will keep a mare in fine condition, and you will not be troubled much lifting up your young colts to stand and suck. The usage I have given does not apply to all mares, aged ones want more care and attention. As regards breeding mares: at 2 years old, if well developed and strong and healthy, I prefer to breed them at that age. All of my best mothers were bred at that age; have lost a number of mares by old age; never lost a mare by disease or at foaling time; never have lost but few young colts, only twins; have never been able to see any difference feeding oats whole or ground to grown stock.

I will now take up the treatment of weanlings. Two year olds may have the same care and attention as weanlings, also three-year olds; don't think it necessary to grind feed for stock after 2 years old. For weanlings I like ground feed in the following proportion, and never have lost a weanling colt yet: To six bushels of oats add one bushels of corn, to three bushels of ship-stuff; four to six quarts a day are enough to feed a weanling well developed; will keep them strong and vigorous. The first Winter has much to do with the constitution and formation of a horse. Let young stock have all the water they want, with plenty of outdoor exercise, and with sheds to go under if they choose in stormy weather; at night let them be put up in box stalls, and feed as indicated with plenty of good timothy hay, and I don't think you will have to lift many colts in the Spring. Handle young stock the first Winter to halter. A little grooming will be beneficial, and will make them kind. They will never forget their first lessons. Many colts get out of condition the first Winter; get thin and poor; look out for vermin; it takes a pile of feed to keep these chaps; a little corrosive put on a cord and corded in the hair is a very good application for these fellows. As to handling and speeding colts at two years old, we hear of a good many very fast two-year-old colts, but where is their speed when aged horses? Put a young boy to hard work when he is growing fast; he won't have a good constitution to make a sound aged man.

Sheep for Wool and Mutton.

This is the way Joseph Harris puts it, in the *American Cultivator:*

What I want to say is, that if there is any better mutton in the world than this Cotswold grade, I would like to taste it.

It is fat, juicy, tender and high-flavored.

And now why cannot we raise such sheep by the million? We want combing wool, and here we have it in perfection. We want good mutton for home consumption and to ship to England, and we want to consume our hay and straw and grain on the farm to make money and manure, and this class of sheep will enable us to accomplish the object.

We are shipping beef to England, and as soon as our mutton is as good as our beef, we shall send carcasses of mutton in great numbers, and with great profit to the producer.

I do not know whether it is the case in the West, but here we can raise mutton, taking the wool into the account, much cheaper than beef.

And in England good mutton commands a higher price than good beef. * * *

There is no dearer meat, both to the consumer and the producer, than poor mutton.

The trouble hitherto has been that we have had no steady and sure market for choice mutton. But now that we can send fresh meat to England, there will be no difficulty in finding ready sale for all the good mutton we can raise.

And there is a constantly increasing demand for combing wool. Looking at the list of prices for wool in Boston for the last fifty years, we find the following figures:

	Fine.	Medium.	Coarse or combing.
1827	42c	32c	25c
1837	70	60	50
1847	47	40	30
1857	60	56	43
1867	60	50	65
1877	48	40	55

Last summer, when the dealers would not purchase medium wool except on their own terms, they were anxious to buy good combing wool. The truth is, that medium fine wool can be raised on cheap land, but combing wool cannot be produced to advantage except where there is a demand for mutton. This gives the farmers of New England and the older settled portions of the country a chance to keep sheep and enrich their land.

Raising Lambs by Hand.

Messrs. Editors American Farmer:

After a lamb is dropped, if it is intended to be left with the mother, it should not be disturbed,—for if a lamb once sucks without any interference, there is not much danger of that lamb, if the ewe has plenty of milk and it meets with no accidents. When the lamb from necessity must be raised by hand, it should be allowed, if possible, to suck for the first time from a fresh ewe; that is, a ewe who has lately lost her lamb, or a ewe that has plenty of milk with a living lamb can frequently spare a little. But, first, where lambs have lost their mothers, if there is a comparatively fresh ewe in the flock, I would make her own it, and raise it too. This can be done—sometimes by rubbing her lost lamb over the ewe you intend to give her. Or, put the ewe and lamb together and show her a dog a few times a day. Either of the above will make the ewe have a tendency to own the lamb, but she will not entirely own it for a few days, and must be treated in the meantime as follows: Shut her with the lamb in a pen, catch the ewe several times a day and hold her while the lamb sucks. This will be necessary until she entirely owns it. If the weather is fit, the ewe and lamb had better be turned into a lot where there is as much grass as can be got. The ewe can be caught in the lot, or driven into the house to be caught, while the lamb sucks. If, from the weather or other causes, the ewe has to be kept on dry food, it is well to feed her bran mashes, or any other milk-producing ingredients.

But, as I have rather strayed from my subject, I will try and get back where I left off. When a lamb is to be raised by hand, it is better to let it suck for the first few times from a fresh ewe, if possible. If not, get a gum nipple and put over a bottle with a ridge around the mouth, to keep the nipple from slipping off. Put the milk, after diluting it about one-half with water, and have the whole about the natural warmth of milk (fresh milked). It is sometimes well enough to put a little molasses with the milk to give it the purgative effect of biestings, or the first milk.

The milk, when it is necessary to warm it, should not be heated so as to scald it. The milk from the bottle should not be allowed to flow too freely, as it will be apt to strangle the lamb. Also be careful not to feed it too much, as there is more danger in feeding too much than not enough. The lamb should be fed frequently for a week or ten days, (for the first three or four days about a tablespoonfull every hour or so;) then as it gets older the quantity can be increased, and the number of feeds be lessened. Ewe's milk is better for a lamb than cow's milk. When a person is raising a large number of lambs by hand, a coffee-pot with a spout made to suit the gum-nipple and holding one-half or a gallon would be suitable. Young lambs are subject to what is technically called "pinning,"—that is, their first excrements are so adhesive and tenacious that the orifice of the anus is closed, and subsequent evacuations prevented. The adhering matter should be entirely removed, and the parts rubbed with a little dry earth to prevent subsequent adhesion. Lambs will often perish from this cause if not attended to for a few days. A farrow cow's milk is not suitable for young lambs, and it is difficult to raise them on it. When used it is generally mixed with a little molasses. After lambs get about three weeks old, if a trough with a little corn-meal in it is kept where they can get at it, they will soon learn to eat some, and about once a week a *very little salt* may be sprinkled on part of the meal.

Brooke Co., W. Va. W. C. RIDGELY.

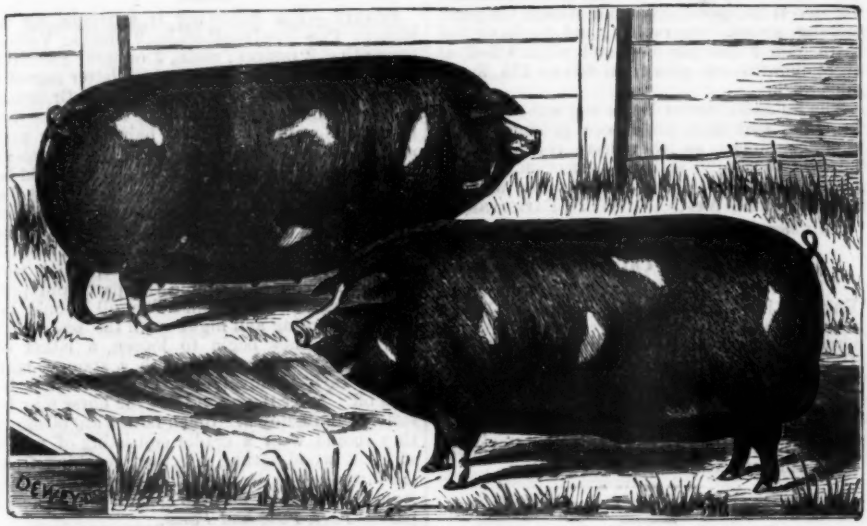
Heaves in Horses.

In heaves, the great point is to correct any faults in feeding, watering and working. Keep the patient in a cool, clean, well-aired stable; feed sound oats or ground feed morning and noon, without any hay or straw, but at night a few pounds of well-cured timothy, or, better, straw may be given after the grain; do not put to work for at least an hour after any meal, and let exercise be gentle for the first half hour; never overdrive; if there is any tendency to costiveness give daily two or three ounces of Glauber salts, more or less, as may be necessary to keep them easy.

Without such careful management, all other measures will prove unavailing, and this care alone may be sufficient to check the disease in its early stages. A run at grass on a natural pasture, destitute of clover, will often have a similar effect. Finally, the following powder may be given daily for a month, or even more: Powdered digitalis, three drachms; powdered gentian, four ounces; powdered coriander seeds, four ounces; arseniate of soda, two drachms. Mix; divide into thirty powders; give one daily in the food.—*Ex.*

TO KEEP CATTLE FREE FROM LICE.—Water in which potatoes have been boiled possesses a poison fatal to lice. Dip into it a large sponge or woollen cloth, and wash the cattle freely, choosing a sunny, warm day for the operation, and as their hides dry, comb them with a curry-comb, and see for yourself the effects of the water.

Poland-China or Magie Hogs.



"QUEEN OF OXFORD" AND "ROYAL CHIEF"—*Property of D. M. Magie, Oxford, O.*

Mr. Magie, who claims the honor of originating this now popular and widely-disseminated breed, writes us that they were produced by crossings from four distinct breeds: the *Poland, Big China, Irish Grazier* and *Byfield;* that they are now more extensively bred in the Western and Northwestern States than all other kinds combined. These hogs are of fine bone, though of large size, combining more than any others the good qualities of both the large and small breeds; and are of quiet disposition, good feeders, good breeders and good sucklers, fattening at any age, and yet attaining great weight at maturity. They can be made to dress 350 lbs. at from ten to twelve months, and 500 to 600 lbs. at eighteen or twenty months. As seen by the engraving they are black and white spotted, sometimes a little reddish, with long bodies, short legs, broad and straight backs, deep sides, with heavy square hams and shoulders, and drooping ears. These pigs are hardy, and not subject to skin disease.

Poland-China Swine.

Messrs. Editors American Farmer:

Pork-raising is a subject in which the farmers of Maryland are much interested, especially in districts where there is a sparse population, meat having to be supplied for the food of the proprietor as well as the laborer, and cured hog flesh must necessarily be the principal kind of animal food. To purchase it from other States, even at apparent low figures, is bad economy, because there is on every farm and about every homestead a large quantity of food, which is almost necessarily wasted, unless consumed by hogs.

The hog that will yield the largest amount of the best flesh at the smallest cost in care and keep is what is wanted. Among the numerous breeds of hogs known, there are some better adapted than others to certain localities, owing to the different treatment and food they receive. The most desirable hog is one that at all ages is in condition with proper care to be slaughtered, and will yield the most and best meat.

Leaving out of consideration the Chester-Whites, Berkshires, China, Essex and other less known breeds, permit me to give you a statement of the merits of the Poland-Chinas, which I think most deserving the attention of our Maryland farmers.

These hogs were first brought into Maryland by Mr. James A. Garey, in May, 1870, and have been kept on his Meadow Farm ever since. They grow rapidly, and are in condition at any time during their growth to be slaughtered,—giving a superior meat, the lean and fat well mingled, suited equally well for use fresh or salted.

They are a beautiful formed hog, with a broad deep shoulder, a compact good side, and a very full square ham. They are very broad across the shoulder and hips, giving the greatest amount of meat in the most desirable parts. Their color is mostly a very dark brown, marked with white or sandy spots over the entire body. Their appearance is handsome, and they are fit ornaments for any sty or barn-yard.

The original hogs introduced by Mr. Garey, and now owned by Mr. H. B. Horton, were exhibited at the last State fair, and the boar Prince, to which the first prize was awarded, at 22 months old weighed 530 lbs., and his brother of the same age, 515 lbs. These hogs had never been forced to their fullest growth.

The first sow pig raised, which was the only sow pig in the litter, at six months of age weighed alive 325 lbs., and a boar of the same age 350 lbs.

We have butchered but few of the full bloods, but those slaughtered were from eight to fourteen months old and weighed from 210 to 400 lbs. A

few of these pigs fed together have gained at the rate of 1½ lbs. per day. A cross with the Chester-White produces a hog which, for pork-making, grows very rapidly, and we have had them gain 2 lbs. per day, and when killed at eight months old give from 200 to 275 lbs. of good pork.

The Poland-China or Magie hog was originated in Ohio, and must have been produced from superior stock, as they have certainly been brought to a high state of perfection, and are now a distinct breed, and great favorite with the breeders of the West. W. H. FAIRBANKS.

Baltimore Co., Md., February, '77.

Importations of Cattle Prohibited.

The spread of the rinderpest in Germany and England is so rapid that the Treasury Department has issued an order entirely prohibiting the importation of neat cattle or hides into the United States until further orders.

MR. Z. C. DANIEL reports recent sales of Poland-Chinas to J. M. Preston, Smythe Co., Va., and Dr. C. A. Rutledge, Harford Co., Md.; and of Essex Pigs to C. C. Howard, N. C., and R. L. Harvey, Northumberland Co., Va.

Preserving Green Corn Fodder.

Mr. Francis Morris, of Howard Co., Md., has been experimenting with the Trenching (*Ensilage*) of corn-fodder in the manner practised by M. Goffart in France. We recently wrote him to inquire if his supply was exhausted, intending to do ourselves the pleasure of calling to examine it. In reply we have the following, which will be interesting to our readers. We hope to hear further from Mr. Morris on this subject, especially as his mishap with one trench will enable him to point out to others the difficulty likely to be encountered from defective drainage.

Gentlemen:—Yours is received. I regret that my supply of corn-fodder is exhausted; had it been otherwise it would have given me great pleasure to have shown it to you.

I first saw the notice of the French method of *ensilage* of corn-fodder in your valuable periodical last winter. I wrote to my grandson (a student in Paris) to send me the books alluded to in your columns, and when I received them had them translated. This translation is to be published by the New York Plow Co., Beekman street, New York.

In September I put up, in the method advised by M. Goffart, two trenches of corn-fodder. One of these was a perfect success, though the corn had been frosted—just touched—and I was fearful of the result. The other,—owing, I think, to defective drainage,—was spoiled to the depth of three or four feet all around; the centre being good. I opened the first trench Christmas day and have fed my cows on it till now. It is my intention to put up 300 tons next season for the use of my stock.

I perfectly agree with you as to the value of ensilage to all farmers, and particularly to dairymen; and shall be very happy to give you, at all times, any information in regard to it that you may desire. Yours respectfully,

F. MORRIS.

Howard Co., Md., Feb. 26, '77.

Veterinary.

SPAVIN.—The following is a recipe for a blister: Powdered cantharides, 2 ounces; Venice turpentine, 2 ounces; rosin, 2 ounces; palm oil or lard, 1 pound. Melt the three latter ingredients together, and, when not too hot, stir in the powdered flies, and keep in an earthen jar for use as it is wanted. Clip the hair from the part as closely as possible, and rub the ointment thoroughly in. The head of the horse should be tied up during the first two days, to prevent the animal from nibbling and blemishing the part or blistering his muzzle. At the expiration of twenty-four hours a little olive or neat's foot oil should be applied over the blister, which will lessen the pain and supple the part, and prevent cracks in the skin. The oil should be applied morning and night until the scabs peel off. When they begin to loosen, a lather of soap and water, applied with a sponge, may hasten their removal; but they must not be torn off. After the second day the horse may be suffered to lie down. When horses are blistered they should wear a cradle consisting of round strips of wood, strung together, reaching from the lower jaw to the chest, thus preventing them from bending the head to get at the blistered part.—*Turf, Field and Farm.*

KIDNEY WORMS IN HOGS.—W. J. S., of Maryland, writes the *Rural World:* For kinds of worms which infest the intestines, there is nothing that I have tried to compare in efficacy to arsenic; although a deadly poison to almost all other animals, it does a hog no injury. For a number of years I have used it, and have cured some apparently hopeless cases of kidney worms. The symptoms of which, I suppose, I need not describe. The arsenic poisons the worms, without at all injuring the hog. Give the hog as much arsenic as you can heap on a ten-cent piece, is the most convenient prescription for a majority of farmers.

TO CLEAR COLTS, calves, or any stock, of any kind of vermin, wash them well in buttermilk two or three times. H. R.

A SIMPLE cure for hog cholera, says our contemporary of the *Kentucky Live Stock Record*, is an infusion of peach-tree leaves and small twigs in boiling water, given in their slop. Peach leaves are laxative, and they probably exert, to a moderate extent, a sedative influence over the nervous system. They have been used as a worm-destroyer with reported success. They have also been recommended as an infusion for irritability of the bladder, in sick stomach and whooping cough. Cases of fatal poisoning from their use in children are on record, as peach leaves contain prussic or hydrocyanic acid; but as it is almost impossible to poison a hog, their use would not be objectionable. The specific is worth a trial.

INDIGESTION IN HORSES.—Prepare by feeding upon bran mashes for three days. Give one-half ounce of nitrate of potash at each feeding; then give seven drachms of Barbadoes aloes, made in a ball. After he has done purging get gentian root, powdered; cinchona bark, powdered; of each, two ounces; make into ten powders; give one night and morning in soft feed.

Poultry Yard.

Sitting Hens and their Management.

By G. O. Brown, Montvue Poultry Yards, Brooklandville, Baltimore county, Md.

It is often remarked that a hen that steals her nest comes home with a full brood of chicks, while those that are "set" in the chicken-house are not so successful. This is a fact noticed in the experience of many interested in poultry. But do all imagine or contemplate why this contrast? In both cases undoubtedly the *hen* does her duty as far as possible, but under quite different circumstances. Let us investigate. When allowed her own inclinations, mother hen will select the *earth* as the foundation of her nest, hidden away in some secluded or shady place. The warmest June or July days, the eggs in such a nest, the side next the ground will be found to be quite cool and moist in comparison with that that comes in contact with the body of the hen. When the hen goes in search for food (for such hens during incubation "board themselves") it is always early in the morning, and they return to the nest wet with dew. Now this is just what nature demands. "Artificial incubation" is only successfully secured by means of having the heat come from above, while the under side of the egg must have its proper degree of cool moisture. Hence the wisdom of the hen; the earth answers this purpose, and while she is fulfilling the old adage, "the early bird catches the worm," she is sure to bring sufficient moisture on her feathers to have effect on the shell of the egg, and keeping the heat of the body retained with sufficient moisture to prevent the parching, so to speak, of the outer lining or membrane inside of the egg. How different with home-made nests; often an old box nailed up against the side of the building, with some old hay or straw, and it is considered complete. So it is. Not for success. Why? Because the eggs have no cooling moisture on the under side, and the hen is fed and not allowed to ramble away in the wet grass. Consequence: some of the eggs hatch, while some the chicks can only break the shell and get their bills through the outer membrane which has become dry—not unlike, in appearance, parchment; and then die. Then there is wondering why the eggs don't hatch, and why the chicks are so weak they cannot get out, even after the shell is broken, &c. Nature in these things should be as closely imitated as possible. Improperly-made nests are oftentimes the *only* reason for having poor results, or, as it is more often called, "*poor luck.*" If it is not convenient to make nests on the ground floor, with a box *without a bottom*, then take a box, place in it an inverted sod, or three or four inches of fresh earth, rounding it out to proper nest shape; then put in clean hay or straw—hay preferable, as the fowls are not so apt to scratch it out looking for grain amongst it. If early in the season nine or eleven eggs are enough; for the outer ones, if more are in the nest, are sure to get chilled, and as the hen daily changes them about in the nest, they, perhaps, all would mostly get chilled. If the hen is confined where she cannot run out when she pleases it will be of great benefit to sprinkle the eggs on the 17th and 19th days freely with *tepid* water. Should an egg get broken and smear the others, they must be carefully washed in milk-warm water. Have a certain hour every day to feed and look after your "setters." On the morning of the 20th day you can ascertain how many of the eggs contain live chicks, by taking a basin of warm water (105 degrees) and carefully putting the eggs in, which will float around, with the large end up, and every egg that has a live chick will soon cause the egg to move in manner readily discernable. No doubt many of our numerous readers know all the above, but as there are some, perhaps, that do not, to those the information may be acceptable.

Keeping Poultry on Farms.

Messrs. Editors American Farmer:

I read with much interest Mr. Brown's reply to the inquiry submitted to him for an answer, whether poultry could be successfully kept in confined spaces.

On most farms there are small lots devoted to special objects that might, with little expense, be fitted up to keep a family of fowls without materially interfering with the regular crop grown therein. An orchard would make an admirable poultry-yard, small lots cultivated in potatoes, tobacco or grass, all of which would accommodate from 15 to 20 fowls with from one to two feeds a day, according to the season. While cultivating the crops an abundance of animal food would be picked up, obviating the necessity of furnishing meat except in winter, when the egg supply was short. There will always be a sufficient quantity of green food along the fence rows for that number of fowls. The young chickens can be placed anywhere on the farm, not too wet, where there is plenty of early sunshine and good shade to retreat to during the hot portions of the day. At all times fresh water should be accessible to old and young, and in summer kept in the shade.

The houses can be cheaply built and very plainly furnished, that the cleaning will cost as little time and labor as possible; a movable roost, a few nest boxes, and in winter a dust-box will be all the furniture required. Several varieties may be kept in these enclosures, provided they are penned for a few days in the houses to become accustomed to their new home; of course the fences must be close enough to turn them. In differing from friend Brown, I do it with fraternal deference to his extended experience as a fancier; but the fancy poultry interest requires now a market for their surplus stock, and that market must be sought among the farmers, and if we encumber thorough-bred poultry with so much minute attention, we drive away the farmer, causing him to prefer the old barn-door to a fowl that will not pay such fancy keeping when sold in the market at the wholesale rates of poultry and eggs. After five years experience, I know that thorough-bred poultry will, with ordinary good farm care, pay a handsome per cent. over the dunghill, both in weight and price of eggs and meat, to say nothing of the pleasure one derives from a uniform flock of fine birds to show when a neighbor calls. I know of one farmer fancier whose birds are kept in these large runs

and will compare favorably in size, symmetry and markings (as our last show proved) with those raised more *fancierly*. C. B. WISE.

So. Md. Poultry Yards, St. Mary's Co., Md.

GAPES.—For gapes, rub up some black pepper and batter, and make the fowls swallow it. One-half teaspoonful is a dose for full grown chickens; small ones in proportion. Repeat the dose every day or two. I do not know the cause of gapes, but they may be prevented as well as cured, if it has not gone too far, by mixing asafœtida with the food of the chickens. One ounce will do for one hundred chickens per day.

LICE.—Sometimes careless breeders will lose whole settings of eggs simply by not occasionally sprinkling the hens and nests with sulphur, or other good insect powder, and the poor hens, unable to stand the dreadful pests, have forsaken their nests. A careful breeder will never allow the scourge of lice among his poultry to trouble him, but will see that he "has none of it."

CURE FOR CHICKEN CHOLERA.—Mr. Joseph Stout, of Westminster, Md., who keeps from 500 to 1,000 fowls, and who sells large quantities of eggs and chickens in the Baltimore markets, gives the following remedy for chicken cholera, which he considers a perfect cure: "Take a handful of white oak bark and boil it in a quart of water to make a strong decoction. After it cools mix with the liquid corn-meal to the proper consistence to make a dough for feeding, and give to the fowls. Mix a teaspoonful of Cayenne pepper to two quarts of the feed. The fowls will eat this mixture readily." His theory is that the cholera is a species of diarrhœa, and the bark and pepper acting as astringents cure the complaint.

GET RID OF THE HAWKS.—As the season is approaching when hawks are most destructive to young poultry, a method of catching and destroying these marauders will be in order. It is a well-known fact that a hawk will always light on some conspicuous place close to the poultry yard, from which to swoop down on his victims. The plan is to take advantage of this habit of the hawk and erect a high pole with a flat surface at the top, just large enough to hold a strong steel trap. Fasten this trap by a chain to a staple in the pole and await results. No bait will be needed, for the hawk will be quite sure to light on the trap and be caught. A gentleman who has tried this method has succeeded in killing all the hawks in his neighborhood, and can now raise any quantity of poultry without risk of their loss through the ravages of their deadly enemy.

GREGORY'S SEED CATALOGUE.—Our readers will find the catalogue of J. J. H. Gregory's well-known seed house advertised in our columns. For freshness and reliability of the seed sent out and enterprise in introducing choice new vegetables to the public, Mr. Gregory is endorsed by the prominent agriculturists of the United States; as recommendations from over forty States and territories, to be found on the cover of his catalogue, amply attest.—[*Ad.*]

Work for the Month—March.

The season for work has now arrived, and that of preparation has gone. Happy is the farmer who has laid his plans thoughtfully and after full consideration and examination. Happy too is he who can closely follow plans laid in good judgment. This cannot always be done, and the nearest possible approach to it is the thing most to be commended.

Oats.—This crop ought to be sown just as soon as the ground is dry enough to work. It deserves better treatment than it ordinarily receives, and the careless preparation of the land is the main cause of the usual unprofitable yield. It succeeds best of course in good soils, but is generally raised on the poorest on the farm. A good application of barn-yard manure or well-rotted compost will always be found beneficial, as will also a surface dressing of bone dust or good super-phosphate, which should be applied after the oats are seeded. These materials are especially desirable if clover seed is to be sown. A dressing of salt, from two to five bushels per acre, has been found to be a very useful application to this crop. Many farmers now put their crop in with the drill, but others still prefer to plow in the seed—a bushel and a-half to the acre—with a light furrow. The grass-seeds may be sown in the fresh soil and followed by a roller.

Barley, too, should be sown early, and likes best a rich, light well-drained loam. Where the soil is not naturally good it ought to be artificially nourished by the use of a good fertilizer, as preferable to barn-yard manure. The practice of rolling when the plants are from four to five inches high is highly commended by some. About two bushels of seed to the acre is generally sown, and sometimes on very rich soils a peck or two more. A very successful dairy farmer of Carroll finds a mixture of oats and barley one of the best of crops for cutting green for his cows.

Potatoes.—The earliest crops are most apt to escape the beetle, and as soon as may be the crop ought to be put in. A soil well drained, not heavy, but containing a good proportion of sand and vegetable matter, gives the best results. Rank, green manures are not adapted to it, but well-rotted composts and such mineral fertilizers as salt, ashes and plaster, always seem to be profitable additions to the soil. Deep plowing and thorough preparation of the ground are essential to success.

Clover.—It is best now probably to wait to sow clover seed on wheat fields until the frost is entirely out of the ground, and then sow and follow with a roller; or, as some prefer, a light harrow and then a roller. A bushel of seed to six acres is not more than enough.

Orchard Grass.—We can scarcely too much commend this valuable grass, whether intended for pasture or hay. It is growing in favor, and is especially suited to our soils, being capable of resisting drought, starting the earliest of any of the grasses in spring and continuing longest of any to give a good bite in the fall. See on another page a communication on sowing

the seed from a farmer of Virginia who recently sent us a sample of some two or three hundred bushels of the seed he had for sale, the cleanest and handsomest we have seen for a long while.

Grass Lands running out may be renovated by thorough harrowing in one or more directions, and sowing bones, ashes and plaster, or super-phosphate, and a mixture of clover, timothy and orchard grass seeds, and then rolling.

Plowing ought to be thoroughly done, whatever else is slighted. We adhere to our belief in deep plowing, except where the subsoil is sour or contains noxious substances, when the deepening of the soil, and the fertilizing, sweetening and æration of the lower stratum must proceed gradually. A good sod turned under will furnish to the roots of both corn and tobacco not only plenty of food, but also a porous, cool protection against the evils of drought.

The Corn Crop.—Requiring such laborious preparation, as this crop does, it ought to begin as early as possible. The contents of compost piles and the barn-yard may be hauled out on the sod which is to be turned. The crop is a rank grower and a gross feeder, and there is little danger of applying too much manure.

Tobacco.—If beds have not been made they should be attended to at once. An occasional dressing of rich manure, chicken dung or guano should be given these where the plants are up, and weeds and grass should be carefully eradicated, and the beds kept free from surface water. See elsewhere in this number some useful suggestions on raising plants. Tobacco in bulk in the house should be frequently looked after, and not allowed to run any danger of heating.

Live Stock of all kinds need special care now, as March is generally a trying month. Working animals should be gradually put to their tasks. Pay particular attention to breeding animals, and see that none suffer from insufficient watering, or lack of shelter during cold storms, such as we are now likely to have.

Manures.—Provide your supplies of purchased fertilizers in good season. Get your home-made composts and the contents of your barn-yard out on the land. Continue to accumulate materials of value for composting.

We add, as connected with this subject, the following extract from the pamphlet referred to in our last, issued by Messrs. Hobson, Hurtado & Co., on Peruvian guano, concerning its use combined with stable manure and when applied alone:

Guano and Stable Manure used together, undoubtly form, it says, the best combination that can be employed for any crop. Stable Manure has properties which Guano does not possess, and there are qualities in Guano not to be met with in Stable Manure—they are complementary the one of the other.

Stable Manure diminishes the stiffness of heavy soils, while it gives consistency to light ones. It furnishes, by decomposition, a certain quantity of Carbonic Acid, which acts as a solvent in the soil; it retains moisture in times of drought, and, as we have remarked before, it holds all the fertilizing elements, more or less in the proportion required by plants. Its disadvantages are: that it decomposes slowly and will not, therefore, furnish food to the plant as readily as required. An addition of Guano corrects this defect, supplying to the plant all it will need until the plant-food, in the manure, becomes abundantly available.

Seed sown in autumn, with Stable Manure, receive the greatest benefit by top-dressing with Guano, early in the spring.

The pamphlet recommends to obtain from the Guano the largest effect on the crop:

1. Previous to using Guano, thoroughly mix it with from two to four times its bulk (according to grade of Ammonia) of sifted earth, mould, plaster, &c. Avoid using in the mixture, alkali, lime, or carbonate of lime.

2. Avoid allowing the Guano to come in contact with the seed.

3. Choose when Guano is to be applied to the soil, damp or moist weather; and if possible, a time likely to be followed by rain.

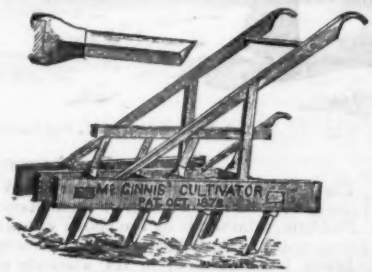
4. Do not allow, if possible, Guano to remain exposed to the sun: harrow, or hoe, it in, as soon as it is spread on the land.

5. A portion of the Guano, say 100 lbs, should always be applied at the time of seeding. The balance at subsequent times—the oftener, the better—before the plant is in flower: this is important in proportion to the thinness of the soil cultivated.

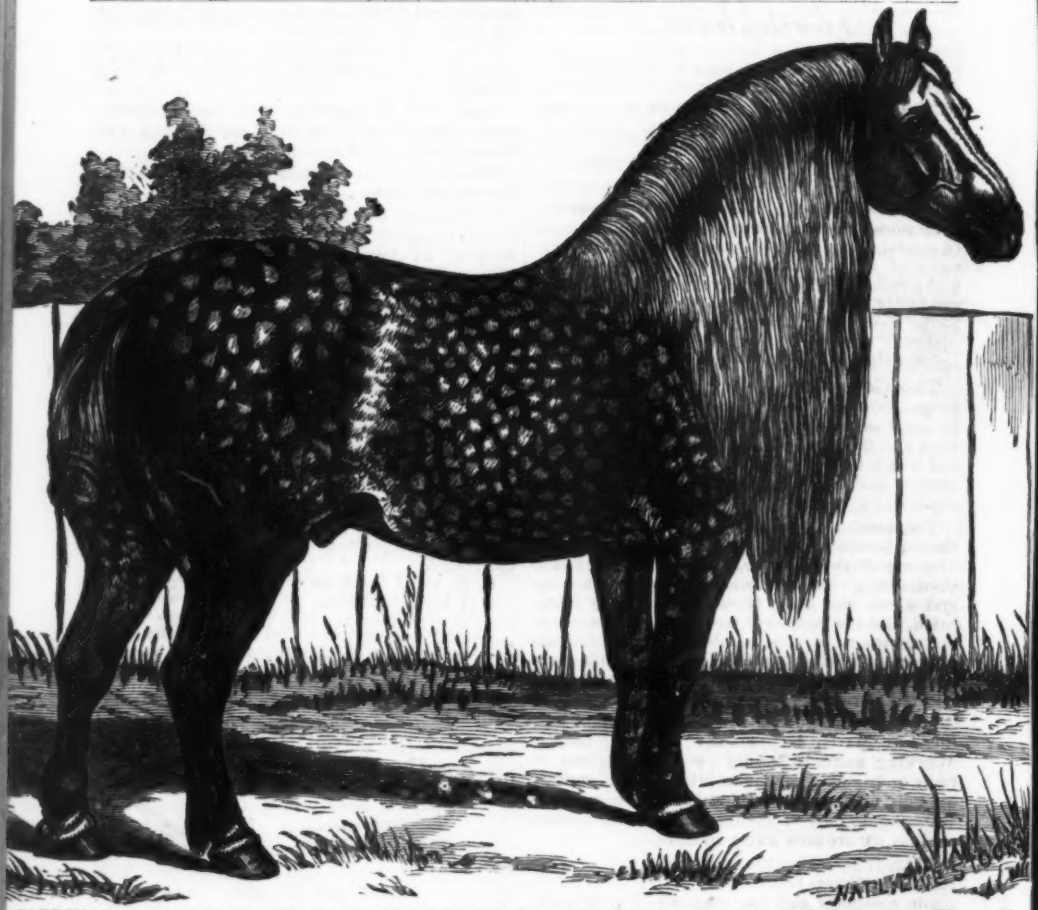
6. In some cases, as with hops, tobacco, &c., one of the applications may be made by spreading the Guano on the hills and covering it with soil.

7. By following the above method and taking the precautions indicated, the best effects from Guano will be insured, and disappointments avoided.

The McGinnis Cultivator.



Captain McGinnis has applied the same principles involved in his harrow to a cultivator, which we figure above. It has been tested already to some extent by farmers in Virginia, one of whom, Mr. G. M. T. Walters, of Fairfax Co., pronouncing it superior to all others he has used The same gentleman says of the McGinnis Harrow, that "it is one of the best implements for working corn in the market." Both these implements are made by Messrs. Danner & Newman, of Woodstock, one of the most extensive and wealthiest manufacturing companies in the Valley of Virginia. This firm, it will be seen by a notice elsewhere, offer one of these cultivators as a premium for the largest club of subscribers to the *American Farmer*.



CARDINAL, imported August, 1876; 6 years old, 16½ hands high; weight, 1,850 lbs. Property of M. W. Dunham, Wayne, Ills.

Percheron-Norman Horses.

These horses are in great favor in the West, as well as in other sections of the United States, and the continued importation of them shows that they are constantly growing in public esteem. Mr. Dunham, who sends us the above cut, has in twelve months imported fifty-two head, and in eighteen months effected sales to the extraordinary sum of $160,000. He says the success of the Percheron horse rests upon the absolute merit demonstrated by years of actual trial without a single failure. As, step by step, they have merged from the obscurity of a single importation, each succeeding one placing new evidence of its merit as a breeder upon record, until, with a steady advance from county to county, from state to state, from ocean to ocean, its fame has been heralded, its success admitted, and to-day it stands before the country the most popular of all breeds of heavy horses, and will remain so, too, as long as a large, active horse, combining spirit, energy and hardiness, with the greatest docility, capable of performing whatever work may be placed upon him as a *general-purpose horse* or one for draft shall be prized.

This blood has been considerably dispersed in this section from the importations by Mr. W. T. Walters, of this city, and the result of crosses made has been already uniformly satisfactory.

In the introduction to the lately issued Percheron-Norman Herd Book, the editor says of the diversity of character of the horses brought to this country, that those in which the Flemish blood preponderates, and their progeny, partake more of the draft-horse type; while south of the Seine, and towards the interior, may now be found a type which possesses nearly all of the good qualities which have made the pure Percheron race so famous, modified by a reunion with its ancient kindred blood of Northern France, which has given it greater size and other qualities which justly entitle it to be called, *par excellence*, the Farmer's Horse. Of this modern type have been the horses that, when brought to America, have achieved the greatest success in the stud.

Horticulture.

Maryland Horticultural Society.

The February meeting, and the first of the series of monthly exhibitions for 1877, was held in the Café of the Academy of Music. The display of plants, considering the low temperature of the evening, was very good, if not large, and the attendance was remarkably good, a very large proportion being ladies.

There was an interesting discussion on Perennial Herbaceous Plants, Mr. Wm. D. Brackenridge opening with a paper, and Messrs. Snow, Pentland and August Hoen participating.

The prizes for the evening were awarded as follows: For the best display of plants, one-half in bloom, $5, W. H. Perot; best table design, $5, R. W. L. Rasin; best basket cut flowers, $4, Gustav Berger; best hanging basket, $2, W. H. Perot; best 12 cut flowers, Camellias, $5, John Feast; best 3 Cyclamens, $2, W. F. Massey.

The subject for discussion at the next meeting will be *Azaleas*, and Captain Snow was requested to open with a paper.

President Perot announced that the Executive Committee had decided, in view of the extensive preparations which would be necessary on account of the meeting here of the American Pomological Society at the time of the annual show of the State Society, to build on some convenient site a temporary building for the accommodation of the exhibitions of both societies,—there being no hall in the city, obtainable, of a sufficient capacity to give suitable accommodations for the purpose. There would be a number of novel features introduced, and it was the committee's intention to make the occasion reflect great credit on the horticulturists of our State.

Potomac Fruit-Growers.

Editors American Farmer:

The February meeting was largely attended, but there was little done except the election of officers, who, for 1877, are as follows: President, Chalkley Gillingham, of Va.; Judson S. Brown and Mrs. Harriet N. Nute, of D. C., vice presidents; Nathan W. Pierson, of Va., treasurer; J. E. Snodgrass, of D. C., secretary.

Dr. Breed read a poem, a copy of which I inclose for publication, if you so desire. [Lack of space forbids.—*Ed.*] The March meeting will be on the second (13th) instead of the first Tuesday of the month. N.

Mr. Meehan on the Fruits of the Centennial.

At the Pennsylvania Fruit Growers' meeting in January, Mr. Thomas Meehan delivered an address on this subject, of which we give an imperfect report from our notes made at the time, for the *American Farmer:*

The value of the fruit crops of the United States is immense, and the fruit interests near large cities are equal to any other products of the land. They make a very large item in the profit of transportation companies, especially during the season of ripe berries and peaches, when the traffic by regular and special trains and by express is very great.

We have the reputation not only of a fruit-growing but of a fruit-eating people. We are not content with large importations to our Atlantic ports of European and West Indian fruits, but the current of fruits from the South to the North (berries, peaches and the semi-tropical fruits) is counterbalanced by that of apples in the opposite direction.

The first fruit exhibited at the centennial, strange to say, was from Australia, consisting of apples, mainly American varieties, well preserved.

A hundred years ago the only *Strawberries* cultivated in this country were the old English kinds, and until about fifty or sixty years ago the Hudson River Scarlet. Then came Hovey's Seedling, a variety which even now maintains its superior qualities. During Mr. Longworth's time, who first discovered that pistillate strawberries were more fruitful than the staminate ones, an impetus was given to the improvement of this berry. The Albany Seedling, which has so long stood the test of varied location and climate, is a hermaphrodite, and we now look for hermaphrodites only, and among them our best kinds are found.

Among *Currants*, the Old Red Dutch was the best shown, as it is, indeed, still the best for general use, notwithstanding its age, which is at least 2,000 years. The currant is a Northern fruit, and the further North we go the better it is.

An immense improvement has been made in the *Blackberry*. Thirty years ago no nursery catalogue mentioned this fruit. We owe, however, nothing of its improvement to man's art, as all the new kinds are accidental seedlings.

Raspberries also have been improved, but there was no advance until it started from a natural seedling; and there has not yet been much improvement in the size or flavor of the black-caps, except what comes from plenty of manure.

In *Gooseberries* there has not been much improvement, though those of Mr. Downing are larger than the natives but less tender. This fruit does not seem suited to warm climates.

The largest *Peaches* shown were from Canada; the finest from Michigan. Peach culture has not progressed much, so far as improving their quality is concerned, since the period of the revolution. The best are still about the oldest peaches, and few new sorts surpass in flavor the old George IV., Pitston, &c.

There has been more improvement in the *Pear* than in any other fruit, and our best pears have come in within the century. The Bartlett in 1789; the Seckel was first *distributed* somewhere about 1800.

The most marked advance has been made in *Grapes*. At first we had only foreign grapes, and the modern era of grape culture began with the Delaware and Concord. When we master the phylloxera we will have native grapes equal to foreign kinds as grown under glass in quality, size, color and weight of bunches. The further North we go the finer the grape, and at the centennial there were Black Hamburg grapes from Canada, *grown in the open air*, the bunches of which weighed 1½ lbs.

California exhibited grapes grown out-of-doors such as we can only grow under glass; but the

seedlings of Mr. Ricketts, sixty or seventy in number, and all excellent, were many of them equal to the best foreign grapes.

The *Apple* has not been much improved in quality, but a great stride forward has been made in getting kinds suited to particular sections; and it was noteworthy that at the exposition splendid specimens of the Golden and Ribston Pippins, and some other varieties, supposed by some to be running out, were shown from many quarters.

As concerns color, the further North we go the brighter it becomes. The fruits from Iowa and Michigan were remarkable for their brilliant hues; while those from Australia of our American kinds were russet and yellow, having lost their high tints. It was remarkable how certain varieties seem to do well everywhere all over the world.

Of *Plums* the display was fine. Ellwanger & Barry's collection—of over 40 kinds—was very handsome. So also were those from Michigan and Canada; but Oregon had the best, especially of the prune kind.

It is very remarkable the improvement that has been made in the Siberian *crab*—an improvement entirely American. In the Northwest crabs are now very much larger than our Lady Apple, and have a sweet pleasant flavor and as little harshness as our Baldwin.

There were no *Cherries* offered at the centennial.

Profits of Blackberries, Varieties, &c.

Messrs. Editors American Farmer:

Your remarks in regard to Mr. Parry being close to the Philadelphia market were to the point, as I don't think any such average price as he reports were obtainted for blackberries by any one in the Baltimore market, where I think it was about 10 cents and even below that. Yet it is still a profitable crop, as they require very little labor when once established. I find some of the varieties quite choice as to soil. I have all varieties doing finely on a red rotten-rock soil. Wilson's Early does particularly well in this soil, while an acre of those planted on a heavy loam don't do near so well, and gets winter-killed more or less every winter, although they are only about 600 yards apart. The Kittatinny gives satisfaction to every one, except on heavy soil inclined to be wet, where it will rust badly; while in the same soil the Missouri Mammoth comes to the greatest perfection, and is, indeed, a grand berry. The Dorchester is also a fine berry and very early on rotten-rock soil. The Hoosac Thornless is not worth cultivating, nor the French Mammoth. The Taylor Prolific comes in bearing this year, when we will be able to judge its merits, and then comes the German-American,—a seedling raised in Germany from one of the varieties sent out by me, with the recommendation of being hardier and more prolific than any of those I sent out.

J. Cook.

Breisgau Fruit Farm, Baltimore Co, Feb. 20, '77

We have received too late for this number a paper from Mr. G W. Lawrence, of North Carolina, on the Scuppernong grape, and which he promises to follow with another on wine-making.

Washes for Fruit Trees—Duties on Seeds—The Pomological Meeting.

Mr. G. F. B. Leighton, of Norfolk, Va., in a letter to the *American Farmer*, not meant for publication, says:

As the season for washing fruit trees is at hand, those whose means are too limited to purchase whale-oil soap, potash, or ashes, can find a very good substitute in sal-soda.

I am not an advocate of scraping. I visited an orchard two years since where the scraper was used, and now the bark presents the appearance of a case of small-pox, which would have been avoided by application of strong washes.

In the matter of blight, our first duty is to find a remedy, which result, if attained, may suggest more nearly the cause.

I forgot in my last letter to speak of a matter in the interest of the truckers.

We have been paying an advalorum duty in gold of thirty per cent. on seed peas, while those for consumption are admitted for ten per cent.

I send you a copy of Supplement to *The Virginian*, 1809, since which time I have been fighting single handed on this line.

I first appealed to Gen. Capron, then Commissioner of Agriculture. He worked like a man in its interests, and even went further, by urging that all seeds and plants for actual planting should be entered on the free list.

The Northern members opposed it. I next applied to Judge Watts, who made no reply. I next applied to Jas. H. Platt, our Representative, who wrote me that his lack of experience in Congressional tactics caused his failure in consummating our desires.

I have placed the matter now in the hands of our present able Representative, Jno. Goode, Jr.

Will not your Horticultural Society come to our rescue and lend a helping hand?

The seedsmen as a class are against us. The grievance has been borne long enough by the producing class.

Fruit-buds are remarkably dormant. Should we have a good fruit crop the coming season we will roll up a goodly list of specimens for the American Pomological Society next fall.

If the season is all right I shall try and stir up what interest I can throughout the State.

In 1871 Nebraska came to the capital of our State with her apples and took the first premium.

Now, sirs, I have seen finer specimens at our State fair than were exhibited from Nebraska. I am not afraid of the fruits from any Western State, but I am afraid of their enterprise,—*there* is where they will whip us.

"Come in Out of the Cold!"

Mr. James Hammon, of O'Brien Co., Iowa, writes for some specimen copies of the *American Farmer*, saying—"I would like to subscribe for it, as I am thinking of moving to Talbot Co., Maryland, next summer, and get out of this grasshopper country as soon as I can. Many more think of doing the same, and I may be able to get a small club."

The Vineyard.

Letter from Mr. Husmann.

Messrs. Editors American Farmer:

I was agreeably surprised as well as instructed by the Nos. of your valuable journal you so kindly sent me, and your friendly remarks about our accidental meeting. As you have opened a vineyard column in it, which already has such excellent contributors as Mr. Heinicken, Gen. Giddings and Mr. Cook, allow me also to present a few clippings of my writings from the *Rural World*, which may interest your readers.

I believe in the future of the South as a wine-producing country, and, from what I saw last Fall, all our leading varieties seem to flourish well there. Therefore I think the Elvira would also fill the bill for Gen. Giddings, *i. e.* make a substitute for the Catawba, as it needs no manipulating to make fine wine, and is as healthy as the Catawba is unhealthy.

While on the subject of Gen. Giddings' communications, I must thank him for his kindly criticism of my little book. When I wrote it, I did not expect as much popularity as it has attained; it was hastily written a long time ago, and no one can see its defects better than I can. I am therefore at present engaged in writing another, which I trust will be better adapted to present circumstances, and which I hope will be as kindly received by the public as the old one has been. We have seen vast changes since 1865; times are different, prices also, and no one could think seriously of trying to adopt my then scale of sorts and profits to grape growing *now*.

One more remark about my advocacy of the method of Dr. Gall. I have only advocated it so far as the *quality* can be improved; whenever it goes any further, and merely aims at *quantity* instead of *quality*, I condemn it. But when we have to deal with the imperfect productions of nature, it behooves us as rational beings to remedy their defects, supply the ingredients of which there may not be sufficient in the grape, and tone down by solution those that are in excess.

Next Fall, if life and health are spared me, I hope to show to you, at the meeting of the Pomological Congress in your city, what we are doing, and what we are growing out here, and, if kind Providence smiles on our vineyards and orchards, show you the Elvira and her sisters in all their glory. Yours truly,

Missouri. GEORGE HUSMANN.

The following is Mr. Husmann's report on the Elvira:

This grape has again vindicated its claim for general and extensive culture so triumphantly through the last very unfavorable summer, that it can now be confidently recommended for our State, and on its success depends much of the future of Missouri as a wine-producing State. It seems to meet all the requirements we have so long sought for as a white wine grape, and every body should plant it, for the following reasons:

1. Its extreme hardiness. It has withstood the extremely cold winters of 1872, '73, '74 and '75 without the slightest injury; where even the Concord suffered more or less throughout the State, the Elvira produced a full crop.

2. Its freedom from disease. It has proved singularly free from all diseases, and produced full crops now for seven years in succession; when last summer, and the summer of 1875, nearly all varieties rotted badly, except Ives, Norton, Cynthiana, and some other seedlings of Mr. Rommel's (of which I shall take occasion to report on in a future number), the Elvira produced a full crop, averaging in Mr. Rommel's vineyard from 20 to 25 pounds to the vine.

3. Its immense productiveness. All the fruit-bearing branches produce from four to six perfect bunches, and a piece of a cane in Mr. Rommel's vineyard, about a foot long, weighed eight pounds.

4. Its handsome and vigorous growth. It is a stocky, short jointed grower, not rambling like the Taylor and Clinton, but the perfect picture of a vine, with thick, light green and abundant foliage, and is therefore well adapted to vineyard or arbor culture.

5. Its handsome bunch and berry. This has improved very much since it fruited first. Bunch full, medium, shouldered; compact; berry about the size of Catawba, round, light green in the shade, pale yellow in the sun, and when it is exposed, transparent; thin skin, tender pulp, very juicy and sweet; fine flavor, pure, without foxiness, ripening a trifle later than Concord.

6. Fine quality for wine. The must of the Elvira is about as heavy as good Catawba, if well ripened, and makes a fine, greenish-yellow wine, without foxiness, and a delicate and full aroma, resembling Riesling. In this respect it will satisfy even the most fastidious fancier of Rhenish wines, and as it can be produced cheap, we shall have in it what we have wanted so long, a true white wine grape, within the reach of all.

7. Easy propagation. It grows readily from cuttings, and, being a Taylor seedling, is likely to be phylloxera-proof, and remain healthy.

Its orginator, Mr. Jacob Rommel, Jr., of Morrison, Mo., certainly deserves the thanks of every grape-grower for his indefatigable exertions in growing seedlings, especially from Taylor seed, of which the Elvira, being tested longer than any of the rest, now stands prominent. Other of his seedlings, of which I shall speak in a future article, may surpass it yet; for good as the Elvira is, they are even superior in quality, but they have not been so fully tested, and Mr. Rommel is determined not to let them go out until they have stood a test of six or seven years. Four of them he has, at my recommendation, named, as they have so far proved healthy, hardy, productive and of excellent quality; but none of them will be in the market before the fall of 1878, and then only those which have stood the test of the two next seasons without flinching. He says: "They shall prove best in every respect, or not go out at all, as the public have already varieties enough, even too many, unless we can add to the number something much better than we already have. There shall be no humbug in my grapes."

But the Elvira is within the reach of all, and every one should plant it who has room for a grape vine.

Farmers Selling Brandy of their own Make.

A correspondent of Virginia having asked us whether a farmer can sell brandy made of his own fruit, in large or small quantities, without a special license—he having paid the tax of ninety cents per gallon,—we submitted the inquiry to the Commissioner of Internal Revenue, who replies as follows:

I reply to the inquiry made in your letter of the 13th instant, that a farmer can sell brandy distilled by himself without being liable to special tax as wholesale dealer, provided he sells in the original stamped packages, at the place of manufacture. He cannot sell at retail without being subject to special tax.

If the brandy is distilled by another person for him, he cannot sell without incurring liability to special tax as wholesale or retail dealer, or both, according to the quantities sold.

Floriculture, &c.—March, 1877.

By W. D. Brackenridge, Florist and Nurseryman, Govanstown, Baltimore county, Md.

Lawn and Pleasure Grounds.

The song of the blue-bird, and the appearance of the modest snowdrop as the solitary gift of Flora, reminds us that spring is at hand; it is also pleasing to mark, day by day, the progress of the crocus, iris and narciss tribes, as they pop the points of their narrow leaves once more through the surface of mother earth; unlike mortal man, when once beneath the ground, no spring can again revive or charm him back. We therefore conclude it is wise for us to be busy while here, were it only to help make two blades of grass grow where only one stood before. There is something extremely interesting in the planting of seeds and trees, and watching their daily and annual progress; and no man or woman that owns land, from the size of a lot ten feet square to that of a hundred acres, who does not adorn the same with plants or trees, is worthy to rank among civilized beings. It is conducive of good health and profitable in the end; as any property judiciously furnished with ornamental trees will realize one-third more than the same land in a naked state; and, moreover, such trees afford shelter for both man and beast; and we would urge upon farmers and stock breeders to plant belts of evergreens and deciduous trees in exposed situations, but particularly near the Farmstead; and in choosing the deciduous trees for this purpose, we would have an eye to the useful as well as the ornamental; this would cause us to select such as the shell-bark hickory, English walnut, pecannut, the Bigarreau or strong-growing kind of cherries, and Siberian crab-apples. These would supply a frugal housewife with the material to make pickles and preserves for winter use, while the cherries would prove refreshing in early summer. And to enjoy life every farmer should have a spring-house as well as a summer-house, or arbor; the latter closed in above, and open at least on two sides; planted all around with sweet-scented honeysuckle, sweet-brier and a few clematis or Virgin's bower; if the site is well chosen it would form a delightful retreat for the ladies and young folks of the family in a hot summer day to sit and sew, or read. Leading from the dwelling-house to this, should be a gravel walk, at least three feet wide, and a row of trees planted on each side to afford shade.

Herbaceous plants, such as Pæonias, Campanulas, Phloxes, Chrysanthemums and Spiræas, if the stools have become large and the centre going to decay, may be divided into small sections; having a piece of ground previously prepared, a fresh plantation may be made, and after planting the surface ought to be covered to the thickness of one or two inches, with well-decomposed manure.

The winter covering of Hyacinths, Tulips, Lilies and Crocus, ought now to be partially removed; afterwards loosen up the surface, so as to admit of a free passage upwards of the tops.

Preparing the ground for bedding out plants is a useful work now to be done, giving the beds a good supply of well-decomposed cow-manure. And, in forming new lawns, observe in the first place to dig or plough the land deep; apply a good layer of manure, and then plough again, smoothing all down to an even surface with the harrow and rake.

A mixture of blue and red top grass, with some white clover seed, makes a good lawn. Don't sow oats to shade the grass. We saw last summer at the centennial grounds a lawn sown down with oats and grass, and another near the United States building which was sown with grass alone; and this looked, in August, as if it had been of two years standing, while that which had oats added appeared poor and thin, though both had otherwise been treated alike.

Greenhouse.

We cast a lingering look behind, give a long sigh, and wonder if our eyes will ever again look on such lovely things as Chorozemias, Hoveas, Croweas, Boronias, Lechenaultias, Enkianthus, &c., &c., of by-gone days; these were beauties indeed, and to have them fine required skillful culture, an article not much in demand at the present day—the tastes of people shaping events, so that the fashions of the day run on soft-wooded plants, and were it not that Camellias and Azaleas still hold their own in public favor, we might, with great propriety, be dubbed a nation of succulent—*i. e.* soft-wooded—floriculturists, delighting in Geraniums, Begonias, Verbenas, Calla Lilies, Lantanas, Habrothamnus, Carnation Pinks, Petunias and Heart's Ease, and I am glad that the charming family of Ferns has also been adopted. We promised in our last to pay a visit to our friend Captain C. H. Snow's fine selection of this tribe, but time failed us, so we dot down from memory some kinds that we deem desirable to possess, viz: Adiantum gracillinum, A. Farleyense, A. concinnum, A. macrophyllum, Asplenium caudatum, A. flaccidum, Anthyrium Goringianum tri-color, Blechnum braziliensis, B. occidentale, Cyrtomium falcatum, Davallia canariensis, D. pyxidata, Doryopteris palmata, Drynaria quercifolia, Gleichenia Mendelii, Gymnogramma chrysophylla, G. triangulare, G. tartaricum, Lastrea decomposita, Lomaria gibba, Lygodium scandens, L. palmatum,—the two last are climbers;

Neottopteris nidus,—bird-nest fern; Platycerium alcicorne—stag-horn fern; Pteris albo-lineata, P. argyrea, P. tri-color, Todea superba, Woodwardia radicans, Lycopodium Martensii, L. circinalis, L. stolonifera.

For the present we omit all tree ferns, and, as a general rule, for the cultivation of the whole tribe, we would simply remark, that the essential elements necessary for their well-being are heat and moisture, with partial shade, preferring well-drained shallow pots or pans filled with decomposed vegetable mould.

We prefer as a time when to shift into larger pots such Camellias as may require it, just before they begin to make their new wood; after shifting they should be moderately shaded for a week or two.

All of the Phyllocactus tribe ought now to receive more heat and water, so that they may perfect the flower-buds set when in a dormant state. And we would remind our readers who want a good supply of bedding-out plants, that young cuttings will now root freely in a warm shady part of the house, and, if cared for, will be in time against the planting-out season. Seeds of annual plants may also now be sown, and if our last month's instructions are consulted on this head much trouble will be saved

The Clematis.

The Clematis, especially the newer varieties, are very handsome, rapidly growing, climbing shrubs, of almost perfect hardiness, and furnishing large flowers of many bright tints. They are best suited to covering trellises, pillars, arbors, &c., altho' in England they are used as bedding plants, being pegged down as they grow, to the surface of the beds. Both there and in this country they are now all "the rage" horticulturally. A great many hybrids have been produced, one of which, the *Jackmanii*, we copy from *Vick's Guide for* 1877, its color being a violet purple. The colors of the new varieties vary from deep purple to red, while others are pure white, some being double and others single. The roots should be covered in winter, otherwise they need no protection.

CLEMATIS JACKMANII.

International Horticultural Exhibition and Congress at Amsterdam.

The President of the Maryland Horticultural Society has received, by the courtesy of Mr. Claas Vocke, Consul of the Netherlands at Baltimore, the list of prizes, supplementary programme, rules and regulations, &c., for this grand affair to be held from April 13 to June 13, 1877. Persons desiring information can inspect the papers in the hands of the Secretary, at the office of *The American Farmer*.

Geraniums.

OUR FRONTISPIECE.

The ZONAL PELARGONIUM, which in common phrase is *the* geranium *par excellence*, and long known as the Fish Geranium, is not only one of the most interesting species for popular cultivation, but owes more than almost any other plant to the art of the hybridizer. The narrow scanty petals and limited range of colors which our grandmothers so much admired, have given place to a grand array of broad-petalled, massive-headed "nosegay" sorts, and a host of broad, round-headed and smooth-petalled varieties.

In color no less than in shape have these varieties improved.

For most of the great improvements in geraniums, we are indebted to the untiring industry and skill of the English and French hybridizers, many of the most distinguished of whom are amateurs who have devoted their lives to the improvement of their favorite. The different sorts have been so intermixed that there is now little difference between the zonals and nosegays, except in the shape of flower and truss, many of the nosegays having as good a zone in the leaf as the true zonals. Our limits will not allow us to follow up the various improvements in this family. The gorgeously-marked tri-colors, the bronze-leaved, the great double-flowered sorts, the number of which now so temptingly described in the florists' catalogues, bewilder us in making a selection. We are glad, however, to see that some of our own florists are paying attention to the improvement of the geranium, and do not seem to leave all the credit to the Dennys, the Lemoines, the Sisleys, and others, over the sea, who have become famous as geranium-growers, and we take pleasure in presenting to our readers this month a beautiful plate of a new American variety, PRESIDENT PEROT, named after the efficient head of our Maryland Horticultural Society, which the raiser, Mr. Massey, assures us is decidedly the best Salmon Zonal he has ever grown out of hundreds of imported and native varieties. Two of our most careful amateurs, Messrs. August and Ernest Hoen, in whose hands it was placed a year ago for trial, unite in pronouncing it the best of the Salmon sorts. Mr. M. has no notion of pausing in his efforts, and has now several seedlings which are to be again tested the coming season before offering them, as well as a batch of baby plants coming on. Mr. Harris, of Philadelphia, has made quite a reputation as an improver of the nosegay class of flowers, and we hope that Baltimore will not long be behind in this matter.

Zanthoceras Sorbifolia.

Messrs. Editors American Farmer:

It will be interesting to the lovers of fine hardy shrubs to know that the beautiful Zanthoceras is perfectly hardy; my specimen plant has stood out three winters, without the slightest protection, unmjured, the branches to their tips being in perfect health; the winter just passed being one of the coldest experienced here in a quarter of a century; the thermometer registering 10° below zero on the morning of January 4th. The London "*Garden*," which gives a plate of this shrub, describes it as amongst the most "important introductions made during the last few years." This valuable ornamental shrub is very rare, and the Paris Museum was the first establishment in Europe which possessed it. The following are its principal characteristics: "A shrub or small tree, 10 or 12 feet in height, and has a tendency to be bushy. The leaves are alternate and composite, reminding one of the Service Tree (Pyrus Sorbus,) which accounts for the name given it by Bunge. The flowers expand during the first fortnight in April at the same time as the leaves are developed, and are disposed in racemes, which attain a height of eight inches, and sometimes more. They are five-petaled, and slightly deflected when fully open. In color they are white, having a very slight fleshy tint, and reddish copper-color at the base shading off into a beautiful purple violet. It flowers when quite small, which from an ornamental point of view is a great advantage." It is also exceedingly floriferous. I would add to the above, with me it is inclined to be bushy and of compact neat habit—of rather slow growth, and unfortunately rather difficult to propagate, which will necessarily cause it to be high-priced for some time, yet all lovers of fine hardy shrubs must possess it.

JOHN SAUL.

Washington, D. C.

How to Construct a Greenhouse Rockery.

Messrs. Editors American Farmer:

Mr. Massey having described, in your January No., how to bed out plants in a greenhouse, I propose now to give a few hints on building and planting a greenhouse rockery, as the most of private places have already too many flowers, judging from the way they are selling them. By a rockery I don't mean a pile of building stones, thrown together and then planted with some rank-growing plants to hide its effect.

If one has no taste or experience with rock work he had better go out to the woods to some rocky place and take a lesson or make a sketch of it. The stones ought to be selected, and only those taken which have cavities in them. Within two miles of my place are stones, which the people call, I suppose for want of a better name, honey-comb rocks. These make splendid rockeries, as their surface is very uneven, with numerous depressions and cavities. Having procured a quantity of stones, supposing you have a greenhouse 16 by 60 feet—a lean-to is the best—partition off 30 feet of the warmest part of it for the rockery; the other 30 feet may be used for pot plants. Leave three feet in front for the bench and three feet for a path; then commence to build up with stones to the height of two feet, filling in the entire space with soil and ramming it solid as you go along. Raise it towards the back wall to three feet, then divide the whole into two spaces of 15 feet each; commence now to build up the corners and gable ends by first commencing in the middle of one of the two spaces rising up, and, at the same time, gradually falling back to nothing under the eaves, not forgetting to leave, in suitable places, spaces of from two to eight inches for plants to grow in. Having finished the gable ends, commence now in the middle of the back wall to build up to its proper height, then keep on falling off towards the front. These will give the appearance of two valleys, and a rock now and then standing out boldly with numerous nooks and corners for plants adds to the effect. All the rocks should be cemented together, making as small joints as possible, and using a little lamp-black in your cement, to give the joints the same color as the stones.

On the outside of the house a barrel can be placed, filled all around with soil and sodded, and set high enough to let a pipe be brought into the house within four feet or so of the top of the wall, from which the water could run amidst a part of the rockery down through the valley into a small basin made of rocks near the path. The course for the water to run should be cemented carefully, filling in all the spaces left for plants with top soil of the woods, or peat, rotten sods and sand. Then plant the small spaces first, and especially where the stones are joined together, with Selaginellas; then the larger openings with Ferns, Begonias, which have the most striking foliage, and Cypripediums; and in the fall a few Cyclamens; while on each corner near the path a climber should be planted, such as Passiflora princeps, which blooms at the end of the young wood in large clusters, producing a charming effect, left hanging down like garlands, with a few climbing Ferns planted below and trained on a rustic-looking branch to meet its more robust sister above. Orchids may be suspended from the rafters and coursers, and the curious-looking Stag's Horn Fern planted in the back-ground, while the delicate *Farleyense* and *tri-color* should be near the path.

Very few have an idea how the Lycopodiums and Ferns luxuriate in these rocks, growing, indeed, better with less attention than in pots.

Such a rockery comes to my mind, in which I sat many an hour of a wintry moonlight night gazing on the tropical treasures before me while I was still amongst the vine-clad hills of the Upper Rhine.

JNO. COOK.

Breisgau Fruit Farm, Md.

[One of the handsomest pieces of Rock-work we know of in this vicinity is in one of the greenhouses of Mr. Wm. H. Perot, on Charles-street avenue, a few miles from this city. The stone of which it is composed is admirably adapted from its porosity to its purpose, and its construction, as well as the arrangement of the plants, is effective and in good taste. The gardener, Mr. Reinicke, would doubtless take pleasure in showing it to any one curious to see a good example of this kind of work.—ED. A. F.]

Chestnut Hill Views—No. 5.

Messrs. Editors American Farmer:

It seems as though these little articles of mine were really to attain their object in provoking others to contribute items from their experience. The February No. of the *Farmer* comes with a welcome article from my respected friend, Capt. Snow, with a partial endorsement of some of our views, and another from some one, who seems ashamed of his name, pitching into Mr. Massey and yourself "like a thousand of bricks." Now, my remarks in the January number were not intended to apply to the readers of the *American Farmer*, as the men to whom I alluded do not take horticultural journals, and I did not suppose any one would apply them to the many honored names whose owners add dignity to our profession in this country. No one would suppose for an instant that I meant to include such men as Mr. Brackenridge, Mr. Wm. Fowler, or a host of others I could name; men of whose friendship I am proud, and at whose feet I would sit to learn horticultural wisdom. But, no one knows better than those that we have gardeners by the hundred, so called, who, before leaving England had probably learned to dig and trench, and perhaps to mow short grass, who, upon their arrival here became complete gardeners, and set up to instruct the poor ignorant natives who are so unfortunate as to be "born on the Eastern Shore of Maryland," (though the writer was not), or elsewhere on this side the water. But I have devoted as much space to this as is necessary.

Winter Gardens.

In reply to Capt. Snow's inquiry as to whether the plants in the arrangement I suggested should remain in the house the year round, I must state that with few exceptions they should. Of course some of the plants should be renewed with young stock in autumn, but I have yet to see Camellias properly cared for under glass during summer that were in better order in autumn than those that have been turned out. I propose the Camellias should be permanently planted and eventually left to take the whole back border. If the house is properly shaded in summer and well ventilated, strict attention paid to syringing the foliage and but little water allowed at the roots, I will guarantee them in better order than if put out-doors. The tri-colored Geraniums will lose their beauty, as they always do, but if they are stumped back hard in autumn they will speedily renew it as cooler weather comes on. The Carnations should be removed with young plants in autumn.

Private Places Selling Flowers.

And this brings me to a remark made a few days ago by a worthy florist friend who had read the article to which Capt. Snow refers. "Friend Massey, you are teaching the people how to grow winter flowers by your articles, while the sale of cut-flowers from private places is already ruining us who are dependent on our flowers for bread." Now, while I insist that it is puerile to talk of betraying "trade secrets" in this intelligent age, when people use their eyes and their ears so constantly, yet the practice complained of is a great evil and injustice to the professional gardeners. I have been astonished since coming here, to find that gentlemen worth millions, who have erected costly glass structures ostensibly for the gratification of themselves and families, are in the constant habit of selling cut-flowers in the market, and that even the great Johns Hopkins University has ordered its gardener to eke out its scanty means by selling blooms to the bouquet-makers. It strikes me that the grand glass range at Clifton Park could better serve the interest of scientific education than by growing "truck." If the gentlemen who sell flowers from their greenhouses were not the dupes of hucksters who naturally want to buy cheap, we of the trade would have less reason to complain; but when these wealthy gentlemen come into market with blooms at half what it has cost them to grow them, we, who know how much of brow-sweat and coal it cost to raise flowers in winter, have good reason to complain that they are doing us a great injustice, and reaping no benefit themselves. So long as the bouquet-makers can get their supplies from Mr. A. or Mr. B. at half the market rates, they cannot be expected to buy flowers from us, whose "children's bread" is dependent upon the sales. I am satisfied, however, that this evil is more the result of thoughtlessness than otherwise, and that it only needs to be brought to the attention of these gentlemen to be corrected. No one who loves flowers wishes to sell them, and there are many of us now in the trade, who would hail with pleasure that day when he would no longer be compelled to part with his pets to gain a livelihood.

W. F. Massey.

Chestnut Hill, near Waverly, Md., Feb. 3, 1877.

Calla Lilies Again.

Messrs. Editors American Farmer:

I consider this lily one of the best plants known for amateurs to cultivate, and particularly well-adapted for window culture, inasmuch as it cannot be watered to death; will stand considerable of either heat or cold, or both; can be dried off in Summer or kept growing at pleasure, is little troubled with parasites; the foliage has a noble mien, and the flower is pure and beautiful. It is, in fact, such a good-natured, take-it-easy sort of friend that I could never discover any good reason why the merest tyro in floriculture cannot grow and flower this plant to some perfection.

One reason why we prefer our Calla lilies kept growing the whole time—a part of them at least—is that those which have been kept growing yield flowers six to seven inches across. Not that we think such large flowers more useful to commercial florists than those of moderate size, but when one has to keep blooms for special purposes, say for instance dinner-table decoration, a dish containing seven or nine such lilies—according to size of dish—with the bright crimson of Poinsettia pulcherrima mixed through them, the fronds of some of the Adiantums and other graceful Ferns, or even well-grown Selaginella, will answer the purpose of trailing amongst the bloom, when nothing better happens at hand, bordered with Myrsiphyllum Asparagoides, makes a good appearance on a dinner-table.

It is perhaps necessary to state that I do not think it at all difficult to obtain Calla blooms of the size mentioned, on plants which have been rested; but it is more easy, for a continuous supply to keep the plants growing.

Our practice is to dry off the large plants in 7 and 8-inch pots early in the summer, and at the same time shift on some of those in 5-inch pots into 7's or 8's according to strength. In the latter part of Summer we re-pot those that have rested, into 5-inch pots, and so continue.

N. F. F.

Fine Hardy Flowering Shrubs.

Editors American Farmer:

It would be difficult to select a few from our collection of hardy flowering shrubs and say they are the *best*, yet I submit the following as being, in my humble opinion, amongst the most desirable, suited for farmers or cottagers' door-yard culture.

Limited to *three:*

Lonicera fragrantissima (Autumnal-flowering Honeysuckle) for its robust, vigorous habit, perfect hardiness, delightful fragrance and adaptation to any situation; Tamerix Africana (African Tamarisk) for its fine foliage, beautiful flowers, and the fact that it blooms in midsummer, when there are few other shrubs in flower; Philadelphus coronarius (Garland Syringa) for general hardiness and beautiful white fragrant flowers.

In planting *six* I would add Calycanthus floridus (Sweet-scented Shrub;) Weigelia rosea, Deutzia crenata (double-flowered;) and for *twelve* would add Lagerstramera Indica (Crape Myrtle;) Mahonia aquifolia (Holly-leaved Mahonia;) Hydrangea paniculata grandiflora; Magnolia purpurea (Chinese purple Magnolia;) Spiræa Reevesii fl. pleno, Viburnum macrocephalum (large-headed Snow-ball,) and Amygdalus nana fl. pl. (double dwarf Almond.)

The above are all well-tried shrubs and easily grown.

WM. FRASER.

Patterson Park, Baltimore.

An Out-of-doors Rockery.

As Mr. Cook gives us elsewhere a description of a green-house rock-work, we copy from Vick's *Flower and Vegetable Garden*, as a companion piece, an engraving of a garden rock-bed, which, as he says, is a very pretty ornament—made of rough stones, tastefully laid up with earth sufficient for the growth of plants suitable for this work.

Low-growing plants are appropriate to the rockery. Portulacca is admirable. So also are such succulents as Echeverias, Sedums, &c.

Varieties of Vegetables, Verbenas, &c.

Messrs. Editors American Farmer:

We have had of late years so many varieties of early, earlier, earliest vegetables, &c., that we are beginning to think that there must be some mistake somewhere, probably in the seasons. One could hardly suppose that so many persons could have been in error, and the number still increasing. Why, since the early pea "Daniel O'Rourke" was sent out, we have been having almost every season one or more varieties, just ten minutes, or days perhaps—we have not noticed particularly—earlier, than any other kind, that there should now be no difficulty in getting "duck and green peas" for Christmas dinner, only the ducks don't keep up with the times—or may be, we have got clear round to the place at which we started. If so, the writer must have got things mixed up considerably, for candor compels him to say, that he has seen nothing in the way of *earliest pea* very superior to Daniel O'Rourke. We have tried some of Laxton's varieties, and have found them invariably up to the raiser's description. Champion of England is still champion for general crop in private gardens; its unapproachable flavor keeping it to the fore. In tomatoes, for *first*, Canada Victor is the best we have tried. Where the color is not objectionable, the dwarf wax bean—black-seeded—is useful in the heat of summer, seeing that it may be used in an older condition than any green-fleshed variety, and it having no string. We have found little new to report. How is it with your other readers?

[We should be glad to have them report.—EDS.]

In the matter of rust on Verbenas, would it not be as well that your correspondents remember, in view of the fact, that as neither of them is a candidate for the Presidency of the U. S., we are not solicitous to know the place of his birth. We believe one man to be "just as good as another, and a great deal better." We know the Verbena rust is no respecter of persons; it is an insidious enemy, and is gradually driving the Verbena, if not entirely out of our flower gardens, certainly into the back-ground, not only in our own State, but in the Northern States also. We are therefore thankful for any fact concerning this matter from any of the readers of the *Farmer*.

In the matter of Horticultural Societies, they are pretty much like other associations; their great need is active, interested *working* members, and unless these can be secured no society can last. Not only is it necessary that gardeners take an interest in its affairs; it is quite as essential that employers give it their support, and also encourage their gardeners to attend its meetings, &c. We never yet knew an horticultural society, nor any other, in fact, that could not get *gratis* all the advice needed, with good deal to spare. The trouble is, this advice don't pay premiums, nor does it induce our fruit and vegetable-growers to come forward with their specimens.

It is of course a very easy matter to blame the Maryland Horticultural Society for want of interest, &c., in every department except floriculture, but yet at the same time it would seem absurd to seek to ignore the fact that this Society has done all it ought, and all that any reasonable

person could expect it to do, to induce the fruit-growers to exhibit their produce. If the growers don't desire the honor which competitive exhibition gives to the victors, it would, to say the least, be an act of discourtesy to seek to thrust it upon them. If they do wish to make our Annual Exhibition the success which its promoters hope to see it, of fruits and vegetables, as well as of flowers, those having such things must exhibit them. "The gods help those who help themselves." D. M.

The Vegetable Garden.

March.—The preparation of the ground, the care of hot-beds and cold frames, and the sowing of hardy seeds, will now give the gardener abundant occupation. There is no possible danger of making the land too rich, nor of plowing too deep, or pulverizing it too thoroughly, any more than there is of stirring the soil too frequently after the crops begin to grow.

New beds of Asparagus may be made, and seeds be sown where roots are wanted next year. Sow the latter in drills a foot apart. Roots should be planted in rich soil in rows, three to five feet wide, and a foot apart in the rows. Old beds should have a good dressing of rich manure and a little salt. Beets, Carrots and Parsnips, and Salsify, may be sown in drills fifteen inches wide, and thinned out as soon as large enough to handle. See article on Parsnips on another page. Cabbage and Cauliflowers, wintered over in frame hot-beds, should be put out and worked all the time. Sow Celery and keep it clean. Lettuce may be set out, and seed sown for succession. Onions need a rich soil; as soon as the ground can be worked sets may be planted and seeds sown thickly in drills for sets for next year's planting. Sow Parsley seed, first soaking them in warm water. Peas should go in as soon as the ground can be worked; cover them deep and put brush to them early. Potatoes too should be planted early. Sow Spinach.

Put hot-beds in order for Egg-plants, Tomatoes, and Peppers, to be set out in May. Melons, Squashes and Cucumbers may also be started in them.

Have your tools and seeds ready for the work at hand. Read the communication on Farmers' Gardens elsewhere in this number. It is full of good suggestions.

Farmers' Gardens.

Messrs. Editors American Farmer:

Though the Frost King seems reluctant to give up the reign that he has held over us since almost the beginning of last November, the lengthening days and occasional twitter of the blue-bird remind us that spring will soon be with us, bringing with it the busy time of the farmer. The past winter has been one of unusual length and severity, and farmers have had but little time or weather to do anything in the last four months but take care of their stock. This being the case, many little jobs that are usually attended to in mild winters will have to be done now. The first thing that should be looked after is the vegetable garden, the *sine qua non* of a well-regulated farm. And yet how seldom we see well-appointed vegetable gardens, even among farmers who pride themselves on their stock and crops? While all acknowledge the great value of a good garden, both in a pecuniary and sanitary point, nearly every one makes the same excuse—want of time. Now I am fully convinced that the failure to have plenty of good vegetables is not so much want of time as *want of method.* The various seeds that could be sown at the proper season in a few moments are left until too late, or are put in when the ground is not in proper condition. Another reason for want of good gardens is, that proper situations are not picked for the purpose. We naturally build our houses on elevations, (slight or large as the case may be,) and we do this that the situation may be a dry one. This is correct and proper. We then have our garden close to the house. This is done to be handy, *and also that the woman may take care of it if we neglect it, which is too often the case.* If the land near the house is a mellow loam with a good subsoil, and the owner would sooner have a good vegetable garden close to his house than have it ornamented with shrubs and flowers, why of course put it there; but I would prefer to have my vegetable garden some little distance from the house. In the first place you are not so hampered for room and have a better pick for situation. In the second place you are not so apt to be troubled by the poultry, which are generally kept near the house.

The quantity of land for the garden of course will be regulated by the size of the family, but I would bind myself to raise all the vegetables for a family of ten or twelve from an acre of ground. With a full, unstinted supply of good manure, every inch of the land can be made to bring two crops in the year, but of course considerable forethought is requisite in planting. I long ago found out that the best and most economical way to work a garden was in long rows so that I can use a cultivator. I plant onions, parsley, sage, in rows the same as corn, cabbage and potatoes. I plant my early potatoes, lettuce, bush beans and early beets in the same part of the garden, and these I follow with flat turnips, sowed about the middle of August. Peas are followed by ruta-bagas, sown last of July. I make about a half dozen plantings of sugar corn, and in all July set cabbage plants between the hills of corn. (I never stop for a rain to set out plants, but when I am ready make the season.) When the corn is used I pull up the whole stock, which gives the cabbage a chance. Savoy cabbage and broccoli can be set out during all August. The land which was planted the fall previous in German kale, Early York cabbage, or hardy lettuce, comes in well for tomatoes, lima beans and other vegetables that cannot be planted until the land is warm.

The different combinations will soon suggest themselves to any one who has charge of the garden. There are a few vegetables that take all the year, viz: parsnips, oyster plants, late beets and late carrots, but as the consumption of these is not so large as some other kinds, a few rows of each will do.

I will here mention a plan that I have followed for many years with my winter beets, &c. I often found when I wanted parsnips or oyster

plants that the ground was frozen and I could not get them up, and beets and carrots will not stand very severe winters in the open ground. Just before freezing make a furrow by running a large plough across some piece of dry land. Then run back, throwing a furrow the other way. This will leave a ditch eighteen inches to two feet wide. I then pull up the vegetables, and, putting each kind to itself, set them close together, and cover the whole with long manure eleven inches deep. You can then get your vegetables no matter how cold the winter is. They will never heat as they sometimes do in kilns, and keep fresh and nice. I always mark with a stick where each kind commences. Agricultural chemists advise the following of nitrogenous plants, such as peas, beans and corn, by carbonaceous, such as cabbage, beets, turnips, &c., and vice versa.

The productiveness of an acre of good land has never been found out, at least not in this country. The best cultivated country is probably Belgium, which, in spite of marshes, supports a population of nearly three hundred inhabitants to the square mile, besides sending great quantities of butter, cheese, eggs, &c., to England and elsewhere. Another advantage of keeping the ground always under cultivation is that you destroy the weeds, which always increase fast and come to seed under the single crop method. You need not fear that you will get your garden too rich. That is a fault to which we are not often called to plead guilty. All vegetables are better for being grown quickly, and this can only be done by plenty of manure and good deep ploughing and subsoiling.

CHAS. H. SNOW.

Harford Co., Md., February, 1877.

Cultivation of the Parsnip.

Though one of the best roots for feed on the farm, as it is sweeter than any other and suited to horse, cow or pig, yet practically I have never seen it used much as a farm feed, because the price in the market and the ease with which it has been sold have always used up the supply. It is raised largely on the Jersey Islands, from which we get that rich little cream-pot Alderney cow, and is said to improve the quality of milk, cream and butter, and to keep the cows in excellent condition. Indeed the character of the Alderney cow may in considerable measure be due to this fact.

It yields as much as the Carrot; has a larger, quicker-growing top, and more shady foliage than the Carrot, and hence needs much less weeding, but to do well needs the whole season, and should be sown *among the first crops of spring*.

Selling at from 75 cents to $1.25 per bushel, at no risk in storage,—and indeed usually safe if left in the bed—it seems strange that more of them are not raised. I can only attribute it to the fact that they are not marketable till nearly a year from the time they are sown, and most people are so impatient as to turn their attention chiefly to crops making a quicker return.

In general terms the crop may be said to be raised quite like the carrot crop, save that it should be sown as soon as the ground can be worked; and, inasmuch as it has such bushy tops, there is more argument for giving it wider rows and horse tillage.

Sow four to six pounds of seed to the acre, and four-inch hills will be better than the continuous row. We harvest in the same way as Carrots, and, though the roots usually endure the winter if left in their places, yet they had best be harvested in autumn and stored where they are accessible when wanted for winter and spring sales. No gardener knows quite the most disagreeable work, until he has been tempted by the high price to endeavor to dig Parsnips as soon as the frost is out and before the ground is fully settled. If buried or stored, they should have frequent layers of earth between to keep them from turning yellow, and thus appearing at a disadvantage when offered for sale.

Though usually safe if left out over winter, yet I have several times here at Rockford lost them, on account of the severity of our winters. Much of the root would be sound but the crowns rotten, and thus the whole unsalable, so that we store our crop. In a northern latitude they will not endure winter if water stands on them.

Raised and harvested in the manner suggested, Parsnips and Carrots ought not to cost more than $60 per acre, or ten to fifteen cents per bushel. With one exception—and that before I realized the importance of early sowing—I do not think my Parsnips have cost me above ten cents per bushel.

J. B. ROOT, *in Garden Manual.*

Prof. Glover's Illustrations of Insects.

Dr. Thurber, the editor of the *American Agriculturist*, has the following appreciative notice of the work accomplished by our indefatigable friend, Mr. Glover:

Prof. Glover, of the Department of Agriculture, has been engaged for many years in accumulating information concerning insects, and making most exquisite copper-plate engravings of them. Despairing of ever having his work published by the Government, and fearing that some accident might destroy the labor of years, Prof. Glover, a few years ago, commenced the publication of his notes, taking an order of insects at a time. We have now before us the volume on the *Hemiptera*, or "Plant Bugs," which contains 10 large plates crowded with engravings of insects, all drawn and engraved by the author. The text is also in the author's handwriting, it being written upon lithographic paper and transferred to the stones, from which it was printed,—a method adopted as cheaper than type for a small edition. An edition of only 50 or 60 copies was printed, which are produced at the author's own expense, and are distributed by him to various Scientific Societies and Agricultural Colleges. The work, like its predecessors, is a wonderful illustration of what may be done by well-directed industry, and the author a remarkable example of unselfish devotion to science. Under some governments the author would be rewarded by a pension; under ours, he can hope for no pecuniary compensation, but we trust that his labors in behalf of the agriculturist may be held in grateful remembrance by those for whose good he has worked so long and so faithfully.

The Grange.

The Grange in Maryland.

A decided impulse seems to have been given the growth of this order in some sections of Maryland during the past few months.

Although the organization, at the offset, did not receive a very enthusiastic reception in this State, from reasons to which it is unnecessary here to allude, except to say that an impression obtained currency that its objects covered features of opposition and even hostility to other occupations—an idea which those now familiar with its real aims, claim to be entirely foreign to it—but the later accessions to its ranks include many of our most respectable, intelligent and successful farmers.

There can be nothing inimical to other callings in the base which underlies the business designs of the organization, consisting in the desired union of farmers to buy in wholesale lots and for the *money down*—a consummation pointed out by the *American Farmer* for more than one generation as the one thing needful for our farmers to secure—and a measure which manufacturers and traders admit is founded on the correct principle, that one who sells large quantities of any goods for cash, can well afford to accept smaller profits than he who retails them on a credit.

As an educational institution, we think the advantages to be derived from the operation of the grange are scarcely to be over-rated, while the social features deserve, in certain districts at least, to be sedulously cultivated, as tending to that much-desired result in many quarters—the bringing together of farmers and their families, and palliating, in some measure, the lonesomeness of farm-life, which, unfortunately, too often is only broken, for the men alone, by a resort for society to the shop, the cross-roads store, or even the tavern.

The public installations of officers of many granges in the State have had a very favorable influence in giving to those not members a very clear conception of the organization, the proceedings, manual, regalia, &c., of the grange, and removing many incorrect impressions.

The simplicity as well as the beauty of the exercises attracted many to whom the secrecy of the order had been a bugbear, and the making of them open was a well-conceived mode of disarming opposition, which sprung only from ignorance of the designs of the association. It is, we think, not impossible that the late marked increase in its membership is to be largely attributable to this influence.

W. M. Moore, of the State Grange of Maryland, requests us to ask the attention of the secretaries of subordinate granges, who may see this number of the *Farmer*, to the necessity of their promptly forwarding to the State Secretary, report of any changes in the officers, with the post-office address of the master and secretary of each grange, as required by article 18 of the State By-Laws.

We cannot often find room—the *Farmer* not being a *newspaper*—for reports received of the election of officers, installation, &c., in subordinate granges. In the case of the formation of new granges, &c, as showing the development of the Order and the fresh territory it is occupying, we will be glad to briefly note the facts and names, but the other matters possess only local interest, not coming within the province of this journal to record.

Premiums for the "Farmer."

The following explains itself:

Woodstock, Va., *Feb.* 20, 1877.

Messrs. Editors American Farmer:

In testimony of our appreciation of the benefits to our trade, derived from advertising in the *Farmer*, we propose to place at your disposal one of our McGinnis' Adjustable-Tooth Cultivators, to be presented to the person who makes the largest club of subscribers to the *Farmer* by the 15th of May, 1877, or such other time as you may designate.

If you accept this small but emphatic expression of our satisfaction, please notify us as soon as the successful competitor is known; to whom and where to ship the cultivator, and we will deliver on board cars. Very truly yours,

Danner & Newman.

Our friends will also remember the offer of Mr. J. W. Kerr, of Denton, Md., as follows:

"I propose to offer as a premium (at my own expense) to the person who sends in the largest list of subscribers to the *American Farmer* by March 25th, 1877, six (6) trees each of the following varieties of American or Chickasaw plums: 6 Wild Goose, 6 Newman, 6 Langsden, 6 Miner, 6 Newman, 6 De Caradeuc, 6 Mooreman, and to add to the collection, peaches, as follows: 6 Alexander, 4 Park's Cling, 4 Garey's Hold On; and the following grape vines: 2 Champion, 2 Worden's Seedling, 2 Senasqua.

"The publishers to notify the winning party, and he to send me his shipping directions. I will pack good stock and deliver free to the railroad or wharf, and the only expenses to him will be the transportation charges to his place."

We hope the generous offers of these friends of the *Farmer* will result in large additions to our subscription lists.

Left Over.—Unable to have the cuts prepared in time, we have been obliged to postpone till our next a description by Mr. R. Chisolm, of South Carolina, of a cheap and very useful fence. Several other articles and communications are crowded out of this number.

The American Farmer.

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Advertisements should reach us by the 27th of the month, to secure insertion in the succeeding issue.

MARCH 1, 1877.

The American Farmer.

Whether a sign of general returning prosperity, or rather an indication of the kind interest so many have shown in promoting its well-doing, we are not prepared to say, but all the friends of the *American Farmer*, we have no hesitation in believing, will be pleased to learn that for the month of February of the current year the number of subscriptions coming in and the actual cash receipts have more than doubled those of the corresponding month of 1876.

If this gain can be kept up throughout the year—as it could undoubtedly be if each one will endeavor to do his best for us—the encouragement would be substantial indeed, and the improvement in our journal, as we hope, correspondingly marked.

Of the high regard entertained for the *Farmer* by its supporters, the following, selected from others of like tenor, bear satisfactory testimony:

Messrs. Editors American Farmer:

I have tried many friends and neighbors to take your paper. They all read it with pleasure whenever I put it in their hands, but say they have not the money to subscribe. But they can always find enough to feed the goddess Fashion, which is bringing this already ruined country to destruction as fast as time can roll around.

So far, I am very much pleased with your paper, and often wish I could aid you in some way. By reading it I have learned to make many useful implements that would have cost me many dollars to buy. In one number alone I found out something I think will save me many hundred dollars. In another I found out how to make guano that I greatly prefer to some that cost me sixty-six dollars per ton. That which I bought I only made three to one, and with what I made myself turned seven to one the year after; and the third year I got fifteen to one,—all upon the same land. I fallowed the same field three years, one after the other, and those were the results. Hoping you much success,

I remain, yours, in haste,
J—— R——.

Lancaster Co., Va., February, 1877.

Mr. H. G. H., of Louisa county, Va., says:

"God bless the *old Farmer* and its venerable editor. One number is often worth the year's subscription. I have been reading it all my life, and will compare farms with any in the neighborhood."

Mr. G. H. B., of Rappahannock Co., Va., in sending a club for the *Farmer*, adds:

"May the editors of the *Farmer* long live to aid and advise the tillers of the soil, is the ardent wish of one by whom its pages are gladly and profitably read these long and cold winter evenings."

Dr. Scott's Address.

We hope if any have been deterred by its length, or by any other reasons, from reading this admirable production, that they will now not only turn to and peruse the part given in this number, but also go back to the preceding portions. It deserves careful reading, and Centralia Grange is entitled to much credit in selecting their lecturer, as he does himself, for his patience and elaboration in treating, in so interesting a manner, a topic not easily popularized.

January No. of '77—Bound Volumes.

Our edition of the January No. of the current volume is exhausted. New subscribers will, therefore, please signify whether they wish to begin with February or March.

We can still supply complete volumes for 1875 or 1876, strongly bound, at $2.00 per volume at our office, or $2.25 by mail.

Producers Retailing Leaf Tobacco.

In answer to an inquiry—whether a farmer has the right to sell leaf tobacco of his own raising, in small quantities to consumers, without paying tax or license, we reply that under the regulations of the Internal Revenue Bureau, still in force, if any farmer or planter sells directly to consumer, or to any other person than those who have paid special taxes, either as leaf dealers or as manufacturers, or to persons purchasing leaf tobacco for export, he becomes liable as a retail dealer in leaf tobacco to the special tax of $500.

The Order of Patrons of Husbandry—Its Aims and Purposes.

A largely-attended public meeting of the farmers of Carroll Co., Md., was held in the court-house at Westminster on the 8th February, and among others the junior editor of the *American Farmer* was invited to deliver an address on the above topic, and the same having been published by request in the county papers, we take from it the following extracts:

You all have long heard the old, old story of the isolation of our farmers; of their dependence on men of other professions; of their indisposition to change; their adherence to the ruts of precedence and prejudice; that they are the beasts of burden of society; taxed on all sides; the fair prey of every other class; and that their hard-earned gains go to fill the already plethoric purses of the merchant, the manufacturer, the miner, the transporter, and that there is great need, pressing need, for their combining and acting together. There is a good deal of exaggeration, but alas! still too much truth in the premises.

This necessity for co operation of agriculturists, admitted on every side, presented, in practice, difficulties too great to be surmounted, and the thing, which all acknowledged to be commendable and desirable, fell through of its own weight, and was never accomplished at all. Farmers' Clubs came into favor, Agricultural Societies were essayed, County Unions had a trial, and all were useful in their day and generation; but neither effectual nor permanent. Now, to quote, not profanely, "*We* show unto you a more excellent way." We offer a plan by which the farmers of this neighborhood, of that section, a handful here—a handful there—powerless of themselves, their interests distinct from or even at variance with those of districts almost adjoining, or separated by an imaginary line, may bring themselves into direct communication, connection and co-operation with over a million of other farmers all over this broad land, who, escaped from leading strings, have begun to think and *act* for themselves, and who invite all who have the welfare of agriculture at heart to enlist with them in this great war for independence—a war not of aggression, not of conquest, nor of acquisition, but for defence and self-preservation; a war waged in the cause of justice—of humanity itself; a war against debt and credit; against ignorance and prejudice.

The agricultural class, as you well know, forms in this country the majority of our population; this preponderance varying in different States, and being greatest in the South. It is superfluous to add, that as a class, the farmers are at least the peers of any other in their moral worth, their orderly lives and law-abiding habits. As a rule, intelligence is diffused, and property fairly distributed. If cases of great wealth are few, instances of extreme penury are far rarer.

Has this great division of our people, possessing these traits, had then its influence in the direction of affairs—have its rights been respected as becomes so important a factor in the body politic—has its voice been heard in State and National councils—has legislation been framed to promote its progress—have transportation companies and commercial associations considered in dealing with it, not only what was possible, but what was equitable?

Such questions need no response.

In the face of the powerful organizations of other classes and professions any effort of farmers was useless. And why? Because among them there was no concert of action—no tie to bind them together—the common interests of their profession made only a rope of sand. Against them on every side was that system which makes a handful of men *organized*, the masters of a thousand, of ten thousand, who without order, without leaders, are at best but a *mob*.

Such was the state of things before our late war. Such a condition continued after it, till a cloud arose in the West no bigger than a man's hand; and which, surpassing any expectation of those who saw its gathering, has spread till it covers the whole horizon.

An organization whose numbers and growth are unexampled in history, composed of farmers, with no adventitious aids, no appeals to human passions, no incitements of spoils of war or office, stirred by no religious frenzy, free from any dominion of political bias—now extends over more than forty States and Territories and stretches its arm across the broad Atlantic and shakes in a fraternal grasp the hand of the stalwart British yoeman, in his sea-locked isles, and that of the farmer across the channel among the vine-clad hills of France.

And for what? Does this organization aspire to political power commensurate with its influence and numbers? Does it aim to participate in the distribution of the administrative offices, of which—unfortunately for our country—there are too many to be filled? Does it seek to gain the balance of power in this land of shifting political forces? By no means. Party politics are entirely unknown and utterly forbidden within the precincts of the Grange.

Its paths are peace. It aims to connect and consolidate farmers together in bonds of social, business and educational association. It brings them in contact for mutual advantage to themselves and their families. The social feature eminently deserves to be nourished, and especially that it includes Woman in its operation, and brightens her life, too often, in the country, one of toil; while her presence in the grange ennobles, purifies and embellishes.

As a business association it is far more than a mere benevolent society. Its influence ramifies through the every-day operations of every member's life. It teaches him prudence in buying—wisdom in selling—economy in using. It urges his combining with his fellows to buy and to sell, and thus gain the advantage of wholesale operations. It inculates on all the advantages of forsaking the credit and adhering to the cash system—the safest road for all; the *only safe* road for the farmer.

It is the only organization which combines with sentiment the *money idea*, and hence it is the only one which, approaching every heart, comes near also to every pocket.

The business motto of the Grange, if I may be permitted to formulate it, is *Cash and Wholesale.*

About that phrase is little mystery, but it is a magic one which proves an enchanter's wand to turn poverty to wealth, barrenness to fertility.

The Grange seeks to do away with *superfluous* middlemen—not to make war on the manufacturer, but to bring him and the producer closer together; to diminish excessive profits and exorbitant charges; to give, but also to take; to live, while it lets live.

It is an educational institution, also. The assembling of farmers together for conference, mutual advice and common effort, evoking the exercise of their highest powers of thought; the friction of mind against mind; the comparison of views and experiences; the formation and maturing of judgments; the exercise of speech in the sessions of the Grange;—these are all helps to education—to "the drawing out" of the man. The order, too, is pledged to the advancement of agricultural education; and it regards the avocation of an enlightened, educated farmer, as the noblest given the sons of men on the face of the earth.

Influences such as I have named, surrounding the farmer and the farmer's son, give occupation for thought, and hands, and time. The spirit of generous emulation becomes aroused on every side, when the full, free and uninterrupted influence of the Grange for good is felt; and doubtless W. Master Moore could tell, if he would, of neighborhoods which have been almost revolutionized by the workings of an animated and well-directed Grange. Two points against which objections are sometimes urged by those unacquainted with the operations of the Grange are the admission to membership of women, and the feature of secrecy.

The sneer about strong minded women is entirely misapplied when directed to this order. There is nothing more unwomanly or immodest in her assumption of offices in the Grange than there is in her taking part in the management of a Sunday School. Her very participation in the exercises gives assurance that unworthy persons have no part there. Her positions are such as tend to add dignity and beauty to the effective working of the order; and her influence softens and blesses, while her spirit animates and cheers.

The secrecy of the order is partly precautionary and partly symbolic. No business organization, where the individual interest of its members are involved, could be conducted out-of-doors. Besides this it is a sign of union and community of sentiment. These people have something which those outside do not possess—that is a bond of fraternity. There is no oath of fidelity to the order. The obligation is one which any honest man or delicate woman can conscientiously assume. It conflicts with no religious, moral, social or political duties. It is so unobjectionable that those two great religious bodies, noted for their objection to secret societies, the Church of Rome and the Society of Friends, do not consider this one included in their expressed prohibitions of them.

THE BALTIMORE CO. GRANGE holds its quarterly meeting on March 8th, at Raine's Hall, Baltimore St. and Post-Office Avenue, Balto.

THE STATE Executive Committees of Md. and W. Va. meet in Baltimore, March 6th.

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[FROM THE RICHMOND WHIG.]

Editor Richmond Whig:

We desire to call the attention of the farmers of Virginia and North Carolina to a false report about "Turner's Excelsior Guano." We herewith enclose you a copy of our letter to the manufacturers, and their reply. The matter of having an honest article of fertilizers is of the first importance to our farmers, and we hasten to lay before them these letters.

Yours, very truly,
A. Y. STOKES & Co.,
Agents Turner's Excelsior.

Feb. 12, 1877.

RICHMOND, VA., JAN. 31, 1877.

Messrs. J. J. Turner & Co., Baltimore, Md.:

Gentlemen—To-day a large farmer in this State called upon us, and stated in a conversation that he had been informed you had sold out your interest in the "Excelsior" and "Ammoniated Bone Super-phosphate Fertilizers," and that your works would go into the hands of other parties, who would use your brands and trade-marks, and manufacture an inferior article, and thus mislead the farmers of Virginia and North Carolina. We can see how such a report would do you very great damage, because the rumor will spread, and unless contradicted many may give it credit. The present high position your guano holds in the estimation of our farmers will make it a mark for many to hit at and do you as much damage as in their power. We have contradicted the report and told the farmer that it was only one of the many mean tricks practiced by some parties to make business. In these days many men think anything is fair to sell goods, forgetting the high principles which should ever and always govern the motives of merchants and manufacturers. We deem it proper to present these facts to you without delay and leave the matter in your hands.

Yours, very truly,
A. Y. STOKES & Co,
Agents for Turner's Excelsior, &c., &c.

BALTIMORE, Feb. 3d, 1877.

Messrs. A. Y. Stokes & Co., Richmond, Va.:

Gentlemen—We are in receipt of your favor of the 31st ultimo, and in reply beg to say that there is not one word of truth in the report that we had sold out our business and trade-marks, "Excelsior" and "Ammoniated Bone Super-phosphate," to other parties. Nothing could be farther from our intention, as we have expended during the past year over $40,000 in additional buildings and machinery to increase our manufacturing facilities, and we hold to-day, for manufacturing purposes, all the high-grade Peruvian Guano there is in the United States, determining to maintain our position as the foremost among manufacturers of reliable fertilizers. Since the introduction of "Excelsior" in 1858 we have made no change in its formula, and we still devote the same care and supervision to its manufacture as heretofore. We particularly desire to call your attention to the original analysis of "Excelsior," made in 1858, and those for the past five years, subjoined:

	1858.	1872.	1873.	1874.	1875.	1876.
Ammonia.....	6.	6.04	6.37	6.40	6.16	6.55
Sol phos. of lime...	19.	19.20	21.18	19.84	19.39	22.18
Bone phos. of lime.	5.	5.12	7.64	9.26	5.86	3.07
Potash.....	2.	2.56	4.04	4.34	4.04	5.61

From the above it will be seen that by strictly maintaining its high standard and adhering to the same principles which have governed us since its introduction we have justly gained a prominence for "Excelsior" which has rendered it a shining mark for the attack of rivals; and we assure our patrons that it shall continue to commend itself to their favor as a *reliable* fertilizer, and in buying which they will get more for their money than in any other fertilizer or guano now sold.

Very truly yours,
J. J. TURNER & Co.

Baltimore Markets—February 28.

The quotations given below are Wholesale Prices.

Breadstuffs.—*Flour*—Inactive, especially for better qualities. We quote: Howard St. Super $5.25@5.85; do. Extra $6@6.75; do. Family $7@7.50; Western Super $5.25@5.75; do. Extra $6@6.50; do. Family $7@7.50; City Mills Super $5.25@5.75; do. standard Extra $6@6.50; do. medium Extra $7@7.25; do. Rio brands Extra $7.75@8; Fancy brands—Fine Flour $4.25@4.75; Rye Flour $3.50@$3.75. Corn Meal—City Mills ₮ brl. $3.15@3.25; do. Western ₮ brl. $2.50.

Wheat.—Receipts light and market quiet, and prices a shade off. We quote: Southern red, fair to good $1.35@1.50; do. do. prime $1.55; do. white $1.46@1.55; Pennsylvania red $1.55@1.56; No. 2 Western winter red $1.51.

Corn.—Southern dull. Western heavy, with an active market. We quote: Southern white 50@53 cents; do. yellow 53@54 cents; Western steamer 51 cents; do. mixed 54 cents.

Oats.—Steady. Supplies light. Quotations: Western bright 40@42 cents; Southern, fair to good 36@38 cents; do prime 40@41 cents.

Rye.—Nominal at 70@72 cents ₮ bu-hel.

Cotton.—Dull and heavy, with quotations of Middling 12¼@12¾ cents; Low Middling 11¾@11¾ cents; Strict Good Ordinary 11@11¼ cents; Good Ordinary 10¾ cents.

Hay and Straw.—Hay is dull. Straw in demand. We quote Cecil County at $18@19; Prime Pennsylvania and Maryland $15@17; Western $12@14; mixed $12@16; Clover $14@15; Wheat Straw $9; Oat $11, and Rye $15.

Live Stock.—*Beef Cattle.*—Dull and hard to sell, with prices ranging as follows: Best on sale 5¾@6¾ cts.; generally rated first-class 4¾@5¾ cts.; medium or good fair quality 3¾@4¾ cts.; ordinary thin Steers, Oxen and Cows 3¼@3¾ cts. *Milch Cows.*—Quoted at $25 to $55 ₮ head for common to good. *Swine*—Dull, with downward tendency, the best bring 8¼ cts., and most sales at 7¾@8¼ cts. net. *Sheep*—In fair demand at 4½@7 cts. gross.

Onions.—$3.25@3.50 ₮ brl.

Potatoes.—Nova Scotia $1.10@1.15; Maine $1.15@$1.40 ₮ bus.

Provisions.—Dull and heavy. Quotations: Bulk Shoulders, packed, 6¾ cents; clear-rib Sides, packed, 9@9¼ cents; Bacon Shoulders, packed, 7¾@8¼ cents; clear-rib Sides, packed, 9¾@10 cents; Hams, sugar-cured, 14@15 cents; Lard 11¼@11¾ cents; Mess Pork, ₮ brl., $16.50@17. *Butter*—New York 25@30 cents; Western 22@25 cents. *Cheese*—Eastern 14@15¼ cents; Western 13@15. *Eggs.*—12@14 cents.

Seeds.—Clover 16¾ cents. Timothy $2.50 ₮ bus.; Orchard Grass $2.50 ₮ 14 lbs.; Red Top 90 cents ₮ 10 lbs.; Kentucky Blue $2@2.50.

Tobacco.—Maryland, of good grades, is firm, but inferior grades are dull. We quote inferior and frosted $3@4; sound common $5@6; good common $6.50@7; middling $8@9; good to prime red $9@10; fancy $12@15.

Wool.—Tub-washed 25@38 cents; unwashed 25@30 cents; fleece-washed 28@30 cents.

Activity in Corn.—The transactions in corn at Baltimore to-day were heavy, and a marked decline was noted in the morning. On the Exchange 310,000 bushels March delivery corn changed hands, the figures running down to 53¼ cents. In addition 100,000 bushels, sold after business on Tuesday, were recorded. After business, sales were made of over 100,000 bushels, and the market reacted to 54 cents for March delivery.

NEW ADVERTISEMENTS.

A. Drevar.—Chestnut Rails for Sale.
M. N. Schnebly.—Short-horns and Berkshires.
L. R. Schnebly.—Bates and Booth Short-horns.
John Wilson.—Jersey Bull for Sale or Exchange.
Dr. H. Schroeder.—Grape Vines.
Wm. Parry.—Trees and Plants.
J. A. Vick.—Vegetable and Flower Seeds.
B. R. Bliss & Sons.—Select Garden Seeds.
G. F. Needham.—Fig Trees for Exchange.
W. S. Little.—Rochester Commercial Nurseries.
Geo. W. Campbell.—The "Lady" Grape
C. B. Wise.—Eggs and Fowls.
W. A. Myers.—Eggs for Hatching.
Styron & Lynn.—Styron's Compound.
D. McNeil.—House and Lot and Printing Office for Sale.
Dickinson & Chewning.—Southern Planter and Farmer.
Joshua Thomas.—Buckeye Mowers and Reapers, Engines, &c.
A. Brackenridge.—Plants for the Million.
P. W. Zierler & Co.—Agents Wanted.
National Art Co.—Engravings.
J. J. Turner & Co.—Correspondence regarding their Manufactures.
J. J. Turner & Co.—Reduction in Price.
J. J. Turner & Co.—Excelsior
P. Zell & Son.—Zell's Tobacco Fertilizer.
J. W. Kerr.—Eastern Shore Nurseries.
Gibbs & Sons.—St. Louis Bone Meal.
W. D. Brackenridge.—Plants and Trees for 1877.

CHESTNUT RAILS

For Sale at $50 per 1,000.

DELIVERED ON TIDE-WATER, by

A. DREVAR,

ANNAPOLIS, MD.

W. A. MYERS,

York, Pa.

(FORMERLY NEW OXFORD,)

Can spare EGGS for hatching from a VERY CHOICE stock of Dark and Light Brahmas, Buff and Partridge Cochins, at $3 per 13. Bronze Turkey Eggs, $5 per dozen. I won 11 prizes at Baltimore Show in January, and 2 medals at the Centennial Exhibition.

Short-Horn Calves For Sale.

Two—a red and a roan. Sires and dams not akin. H. B. animals of rich milking strains.

Also a choice lot of BERKSHIRE PIGS, old enough to ship in March, of T. S. Cooper's stock.

M. N. SCHNEBLY,

Fairview, Washington County, Md.

Bates & Booth Short-Horns.

I have for sale a few choice YOUNG BULLS, with Herd-Book pedigrees, and bred from prize-winning animals on both sides. Calves got by Duke of Bloomfield, 16,030; he by Imported Prince Nicholas, 28,647. Neither of these Bulls ever received a second prize.

Call on or address

L. R. SCHNEBLY,

Fairview, Washington County, Md.

Jersey Bull For Sale or Exchange.

I have a fine four-year-old JERSEY BULL, thoroughbred and good size. Fawn color. I gave $50 for him, a calf. Will take the same, delivered on steamboat, or will exchange him for a full-blood SHORT-HORN (BULL) CALF, 4 to 6 months old.

JOHN WILSON,

mr-2t Coleraine, Bertie County, N. C.

BONE. BONE. BONE.

BRUNNER'S

CELEBRATED

St. Louis Bone Meal!

We offer to Dealers and Planters this high-standard BONE (sold for several years in this market, giving universal satisfaction,) in quantity or by single ton, at REDUCED PRICES.

C. OBER & SONS,

Manufacturers and Dealers in FERTILIZERS, &c.

mar-2t **85 Exchange Place, Cor. South St., Up Stairs.**

ROCHESTER COMMERCIAL NURSERIES.

[Established 1880.]

SPRING Price List, per doz., 100 and 1,000, of Trees and Plants, including a select list of Specialties and Novelties, FREE to all. Beautiful new Ornamental Catalogue, 10 cts.; Fruit do., 6 cts. Free to customers. Address,

W. S. CURTIS, Rochester, N. Y.

YOU WANT A "LADY."

to make you happy! The "LADY" is the finest large extra early WHITE GRAPE known. Ripens middle of August. Hardy, healthy, productive, and everywhere reliable. Nine years tested, and approved by the best Horticulturists in the Union. Strong one year plants $1.50 single; $15 doz.; $100 per 100. 2-years plants, $2 single; $20 doz.; $150 per 100, pre-paid, by mail or express. Circulars and price-list of 60 varieties of Grapes free.

GEO. W. CAMPBELL, Delaware, Ohio.

SPRING PRICES AT Eastern Shore Nurseries.

APPLE TREES, very thrifty and fine growth, 5 to 8 feet, 3 years old, only $10 per 100. Winter varieties for Maryland and Virginia a specialty.

PEACH TREES $5 per 100.

PEAR TREES, Standard and Dwarf, very fine.

CHERRY, PLUM, and ALL KINDS of Nursery Stock, low—very low. A No. 1 stock of Wild-goose PLUM TREES, true and very cheap.

GRAPE VINES, 25 best varieties, at rates too low to name here. SHADE and EVERGREEN TREES, Small FRUITS, &c., &c., at prices to suit the times.

Send for price-list. Address

J. W. KERR, Denton, Md.

STYRON'S COMPOUND.

This Fertilizer is manufactured, after a thorough test, takes pleasure in offering to the Farmers of Georgia, South Carolina and North Carolina as the CHEAPEST and BEST FERTILIZER ever introduced in the States, and possessing exactly those properties of which the land has from year to year been robbed.

For SMALL GRAIN, CORN or COTTON it has no superior, and is pronounced INVALUABLE, as also for Fruit Trees and Grape Vines.

It is highly recommended by Rev. N. B. Ousley, A. Means, D.D., LL.D, and James B. Park, Esq., honored names in Georgia, with all who have given it a trial.

Price $25 per Ton, or $3 per Sack, free of carriage on cars at Gaffneys, S. C. For further information or orders for Compound, address

STYRON & LYNN, Gaffneys, S. C.

GRAPE VINES.

1,000,000 of Concord, 1 year, $15 to $20 per 1,000; 2 year $25 to $30. All other varieties cheap.

DR. H. SCHRODER, Bloomington, Ill.

FOR EXCHANGE.

I have a few hundred BIG TREES that I will exchange for PEAR, QUINCE and APPLE TREES, or SMALL FRUITS. They will be worth $3 per dozen by mail, and prepaid. Full instructions given, so that they can be made to fruit successfully and abundantly.

G. F. NEEDHAM,

The Cedars, near Seabrook, Pr. Geo. Co., Md.

BARGAINS! BARGAINS!

The subscriber will sell to a cash purchaser a

Complete Printing Office,

Type nearly new, and sufficient for a 28-column paper; good WASHINGTON PRESS, and all fixtures, (cost $800,) for $600. Also SPLENDID

House and Lot of Six Acres,

in the thriving and beautiful town of Ansonville, Anson County, N. C., in 200 yards of the Carolina Female College, for the very low price of $600, cash.

Address D. McNEILL (Cor. Ed. Farmer),
ma-3t Montpelier, Richland County, N. C.

Southern Planter and Farmer,

RICHMOND, VIRGINIA,

Chief Agricultural Journal of the South, devoted to Agriculture, Stock, Horticulture and Rural Affairs; Subscription $2 per year. In connection with this paper, we have VIRGINIA FARMS in every portion of the State for sale.

Send stamp for descriptive list.

DICKINSON & CHEWNING,
RICHMOND, VA.

Southern Maryland Poultry Yard.

EGGS for hatching from high-class and premium stock. Three yards of Light Brahmas and two of Partridge Cochins. No eggs shipped older than four days, and none after May. Lowest hatch reported last year previous to June was 7, highest 11, per setting. Price $2.50 per 13, or 30 eggs for $5.00. Very fine young birds to spare at moderate figures. No better blood can be found. C. B. WISE, California, Md.

BURNS & SLOAN,

No. 132 Light Street Wharf,

BALTIMORE, MD.

BUILDING LUMBER AND SHINGLES,

Lime, Bricks, Sash and Mill Work.

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To Corn Growers and Tobacco Planters.

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Ammonia,	**3.30**
Soluble Phosphate of Lime,	**22.91**
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Composed of the most concentrated materials, it is

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I invite particular attention to my large stock of **BEDDING PLANTS** suitable for Ribbon Beds, Fancy Gardens, &c. If wanted in quantities I can supply plants suited to such purposes at prices that will place them in the reach of all. My stock is large, in fine condition, and free from all disease. We annex a list of a few leading sorts to let the public judge of our prices:

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Acheranthus,	5 kinds	$ 6 00
Altenanthera,	4 "	6 00
Cannas,	10 "	12 00
Geraniums,	100 "	8 00
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In growing and maturing that crop. It is now their unanimous opinion that "from the application of EXCELSIOR the crop is heavier, of finer quality, cures earlier, and is not so liable to suffer drought, as from the use of Peruvian Guano."

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PERFECT WORK,
LIGHT DRAUGHT,
FREEDOM FROM CHOKING
MEETS ALL THE WANTS OF THE PLANTER FOR THE CULTIVATION OF AN ENTIRE CROP.
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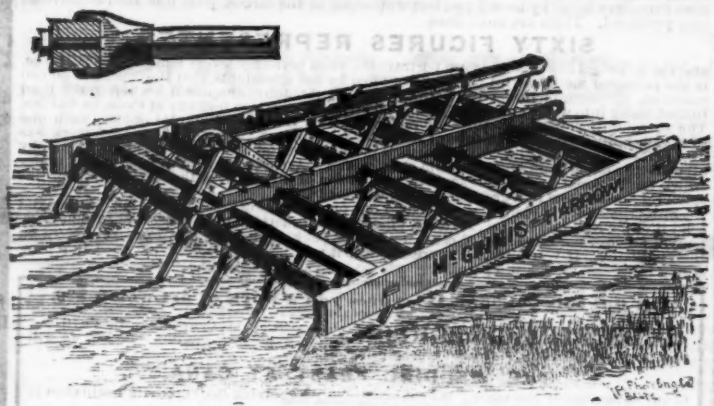

October 11th, 1875.

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New Vegetables a specialty.

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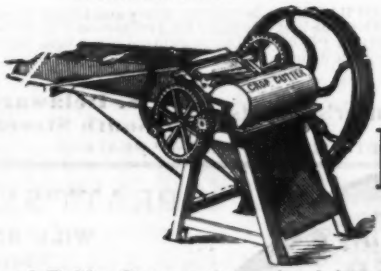

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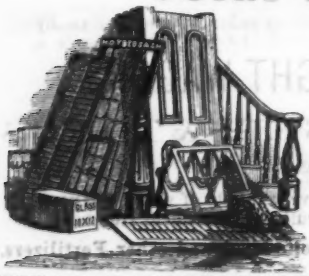

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